EDUCAT0R SUPPLY and DEMAND IN TENNESSEE

Executive Summary
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Prepared by Data and Decision Analysis, Inc.

The SREB-Tennessee Educator Supply and Demand Project is underway because of the cooperation of the Tennessee State Department of Education, the Tennessee Higher Education Commission, and the Tennessee State Board of Education. Staff of these agencies provided valuable time and experience to the project. The program has been funded by the State of Tennessee.

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Preface

This report focuses on trends in the educator workforce since the General Assembly enacted Tennessee's 21st Century Classroom reform program entitled the Education Improvement Act (EIA), in March 1992. The EIA was intended to raise standards, reduce regulations, increase accountability, improve management and provide greater funding for instruction. Implementation began in the 1992-93 school year. The act also provided a new funding formula, the Basic Education Program (BEP). The BEP provides additional funding over a five year period to ensure sufficient and equitable state and local funding. In addition, changes in teacher education policies by the State Board of Education in 1988 required academic discipline majors for all graduates. Implementation began in the fall of 1990 with the new standards applying to graduates after September 1994.

A previous series of reports (Educator Supply and Demand in Tennessee, April 1996 and September 1997) also examined the teacher workforce changes since 1992 and reported statewide supply and demand for educators. The most recent report focused on district level changes. This report focuses on district level changes and takes a closer look at the production of individuals trained to be teachers in Tennessee's institutions of higher education.

Introduction

This introduction provides a brief overview of the factors that shape supply and demand. Analyzing the supply and demand for educators requires understanding the forces that shape how educators move in and out of positions in public primary and secondary education, and the demographic factors that determine the changing number of students in districts.

Supply is composed of educators who are retained as educators from one year to the next, educators returning to education after some period of absence, and new entrants without any previous teaching experience.

Retained educators remain in their same position from one year to the next, or change positions. Further, such educators may change districts from one year to the next. Retention is the primary source of supply of educators, accounting from more than 90% of the supply for most positions. Thus, understanding the factors that influence attrition is important. The most important factor related to the rate of attrition is the number of years of experience. New teachers exit at very high rates for the first 10 years. Then educators remain at rates often exceeding 95% retention, until the 28th year of experience arrives. Then the rate of attrition climbs again as educators start to retire. Having a steady supply of new teachers is essential, and observing how the existing workforce ages is just as important.

New entrants, who have bachelor degrees or who complete post baccalaureate programs (first licensure recipients) from institutions of higher education enter public education at the greatest rates immediately after graduation. The rate of entry (or the yield) then drops off dramatically. This pattern of yield is true of exiting teachers as well---the greatest number returns within 1 year of absence, then the number that return drops greatly.

Enrollments of students by grades follow quite predictable patterns or movement from one grade to the next. Kindergarten students are the most difficult to predict, as we must rely on live births counts five years previous to make the estimate. Economic conditions that change in or out migration, or alter the preference for private school attendance can have a substantial influence on enrollments. Enrollments, in conjunction with course-taking behavior on the part of students in junior and high school, and mandated – or recommended--student to teacher ratios drive the level of demand.

The matter of supply and demand increases in complexity when considering how it varies by grade, subject area, district, gender, and race/ethnicity. Indeed, some districts have many applicants while other have few. Some subject areas have a glut of trained and certified individuals, others have a shortage. Some positions are largely male, others female. Some positions are well-represented by a diversity of ethnic groups, others are not.

This report provides information about many of these forces, and uses the trends in the data to present a supply and demand projection to the year 2002.

HIGHLIGHTS

Educator Workforce

The Tennessee educator work force is stable with few substantial demographic changes in the 1990's.

- From 1993 to 1997 the total educator work force increased by 3620 persons with a growth rate of 6.6 percent.
- Among teachers, the greatest areas of growth were in junior high school teachers (18 percent) followed by kindergarten teachers (15 percent) and special education teachers (9 percent). In 1997 there were 3031 more teachers–438 more professional staff and 151 additional administrators than in 1993.
- From 1993 to 1997 the number of counselors increased 17 percent with the largest increases earlier in the period.
- The teaching work force continues to be predominately white females with 77 percent of all educators who are female. Special education, early childhood, kindergarten, and elementary areas have the highest percentage females (88 to 98 percent). Fifty-five percent of high school teachers are women.
- Females in the superintendent ranks have increased from 9 percent in 1993 to 12 percent in 1997.
- Black educators as a percentage of all educators declined slightly from 1993 to 1997.
- The highest percentage of black educators are assistant superintendents, elementary and secondary principals, middle school teachers and counselors.
- While 11 percent of the teachers retained in any one year are black, only 8 percent of those re-entering teaching or being hired with no experience are black. Approximately 12 percent of those teachers who leave each year are black.

Work force Dynamics

The work force dynamics describe how the educator work force moves in and out of positions in Tennessee schools. The patterns have not changed substantially in the last 5 years.

- The total percentage of educators leaving the work force in 1992 (prior to the implementation of the EIA) was 8 percent. Since then attrition rates have gone up slightly and down slightly. In 1996, 8 percent of the educators left the work force with an 8 percent attrition rate for teachers.
- In 1997, 5 percent of the teachers who were newly hired had no experience, 4 percent were returnees to the classroom and 91percent had been teaching in Tennessee the year before.
- Among teachers, 2 percent change districts within Tennessee from one year to next, and 1 percent of administrators and professional staff move. During the early years of EIA more movement from district to district took place.
- Teachers in 1997 averaged 44 years old, had l5 years of experience with an average salary of $34,464. Newly hired teachers with no experience averaged 29 years of age with salaries of $25,096. The profile of those who left (including retirees) was 45 years of age with 14 years of experience, and a salary of $31,694.
- The attrition rate of teachers over the last 4 years has been 8 percent overall, but differs greatly by years of experience. Teachers leave at rates of 10 to 15 percent the first 4 years. However, teachers with 15 to 22 years experience have 3 percent attrition rates.

- Teachers who leave the classroom are most likely to return one year after leaving. The longer they are out of education reduces the probability of returning. For all educators who left in1989 (including retirees) some 18 percent returned by 1997. Slightly more than one-fourth of female educators with less than 20 years experience return. First year return rates increased in both 1995 and 1996 over previous years.

- For newly hired teachers (no experience) in 1993, 89 percent remained in the classroom after 1 year and four years after being hired only 66 percent remained.

Supply and Demand

This supply and demand information for Tennessee teachers examines a variety of indicators by looking at all sources of supply--new hires, reentrants, and those who remain in the classroom. It focuses on where the teachers are prepared and shows shifts and trends related to programs to prepare teachers. On the demand side, indicators include changes in student enrollment, student-teacher ratios and meeting state standards. The student-teacher ratios that have been set by Tennessee are used in the analysis to determine numbers of teachers needed under those conditions.

Supply Indicators

- The teaching work force is composed of 5 percent of new entrants to teaching (no experience). Four percent of the teachers have previous experience but were not in the work force during the last year. The remaining 91 percent of the 1997 supply were teachers who remained in Tennessee's classrooms from 1996 to 1997.

- The composition of the administrator work force shows only 1 percent who are returnees and less than 1 percent who are new entrants. Professional staff have 3 percent new entrants and 2 percent who are returnees. These proportions have remained stable since the mid-1990's.

- An analysis of the persons prepared and seeking first licensure in 1997 show that 36 percent were prepared in public bachelor's degree programs, 27 percent in public post-baccalaureate programs, 29 percent in private bachelor's programs, and 9 percent in private post-baccalaureate programs. This is a shift from 1993 when 46 percent of those seeking first licensure were from public bachelor's programs, 21 percent from public post-baccalaureate, 26 percent from private bachelor's and 7 percent from private post-baccalaureate programs.

- Those being prepared and seeking licensure are overwhelmingly white females. For every one black female prepared to teach and seeking first licensure in 1997 there were three white males, twelve and a half white females and one-fourth black male.

- Post-baccalaureate programs have slightly higher percentages of men and minorities than bachelor's programs.

- The supply of new graduates in Tennessee is very regional. Graduates tend to be hired in districts in close proximity to their home college or university.

- While a clear shift has taken place in the type of programs preparing teachers that pattern is not reflected in the hiring. Some 80 percent of those hired are graduates of bachelor's degree programs.

- The pattern of hiring from 1993 to 1997 shows that 50 percent of those who complete programs in public colleges and universities and seek licensure were hired; 36 percent of the private college and university persons were.

- Of all the newly hired graduates of Tennessee college and universities (with no experience) 72 percent are from the public institutions, 28 percent were prepared in private institutions.

- For all of the graduates of public institutions that were hired for Tennessee's classrooms from 1993 to 1997, Middle Tennessee State University produced 26 percent of those hired followed by the University of Memphis at 16 percent, Tennessee Technological University at 16 percent and East Tennessee State University at 10 percent.

Austin Peay State University and University of Tennessee at Martin had 9 percent each of the new entrants who were graduates of public institutions**.**

Demand Indicators

- Thirty-three percent of all educators in the state work in five districts. Slightly over half (51 percent) of all educators in the state are employed in 15 districts.

- The rate of growth of total enrollments in Tennessee has been around 1.5 percent each year for the last five years. Teacher growth rate has moved from between less than 1 percent to 2.8 percent.

- At the state level the projected enrollment shows differences by grade levels. Over the next five years from 1997 to 2002, a 1 percent enrollment growth is expected in kindergarten (compared to 15 percent over the last 5 years). Elementary schools are projected to have a 4 percent growth (compared to 7 percent earlier); 13 percent for the middle schools (5-6) compared to 4 percent earlier; and junior high schools (7 to 9 percent compared to 3 percent earlier). High school enrollment is projected to increase to 5 percent compared to 7 percent from 1993 to 1997.

- Enrollment projections vary considerably by district. For instance, 53 percent of the districts should see decreases in kindergarten enrollments from 1998 to 2002 with 47 percent to see increases, 26 percent should experience decreases for elementary, compared to 74 percent increasing. In the middle schools 14 percent are expected to decrease, 1 percent remain the same, and 86 percent increase in enrollments. For high schools 33 percent of the districts should see decreases with 67 percent experiencing an increase. These projections are based on districts meeting the EIA student to teacher ratios.

Supply and Demand Projections

- Work force changes expected until 2002 vary considerably by district. Two-thirds of the districts should see increases for kindergarten; 72 percent will see increases for elementary schools while 28 percent will either decrease or be the same.

- In the middle grades, 86 percent of the districts are expected to increase work force, 14 percent decreasing or remaining the same. In junior high schools 70 percent of districts should expect increases with 30 percent decreasing or remaining the same; in high schools, 42 percent are expected to decrease or remain the same with about 58 percent increasing the work force.

- Over the next five years the greatest pressures for districts will be in the middle schools with the largest increases in the work force needed to serve more students and maintain standards.

- In high schools most districts will meet the standard but increasing enrollments will add pressures to add to the work force. In both kindergarten and special education there will be less demand for adding teachers compared to the last five years.

- Subject areas of concerns include special education, (especially visually impaired, blind and multi-disabilities), foreign languages, English as a Second Language, and mathematics and sciences, especially in the middle grades.

- Supply and demand conditions differ over the state of Tennessee. Large urban districts collectively account for more than 50 percent of the permits and waivers and in the state. Elementary teachers, usually in great supply overall are showing an under supply in urban areas as seen by the request for waivers and permits. Social studies is also a concern in the urban districts.

Demographic Trends

Changes in Student Enrollment

Tennessee has experienced differing rates of change in the number of enrollments by grade. Total numbers of students continue to increase in all areas except junior high school and special education. Elementary grades are increasing at the greatest rate of over 7000 per year for the past 2 years. Over the last 5 years there have been 32,639 more kindergarten and elementary students. Middle school grades have increased by 4262 students over the past 2 years. High school students have increased by large numbers for each of the last 5 years.

Table 1: Net Enrollments by Grade Level

	K	1-4	5-6	7-8	9-12	Special Education	Total
1992-93	69,680	287,777	140,524	138,900	249,570	20,524	906,975
1993-94	73,547	291,880	141,531	141,903	255,736	19,076	923,673
1994-95	76,576	296,048	141,519	144,063	258,471	19,723	936,400
1995-96	79,597	300,753	143,235	143,756	262,367	18,509	948,217
1996-97	80,085	308,051	145,781	143,579	266,990	18,159	962,645

These changes in enrollments, often in the thousands, translate into small overall percentage changes to the system as a whole (see table 2). For example, the 7786 increase in kindergarten and elementary students from 95-96 to 96-97 divided by 139 districts shows an average increase of 56 students per district. Given a recommended student to teacher ratio of 20, this translates into roughly an additional 3 teachers needed per district, but that growth is uneven across the states.

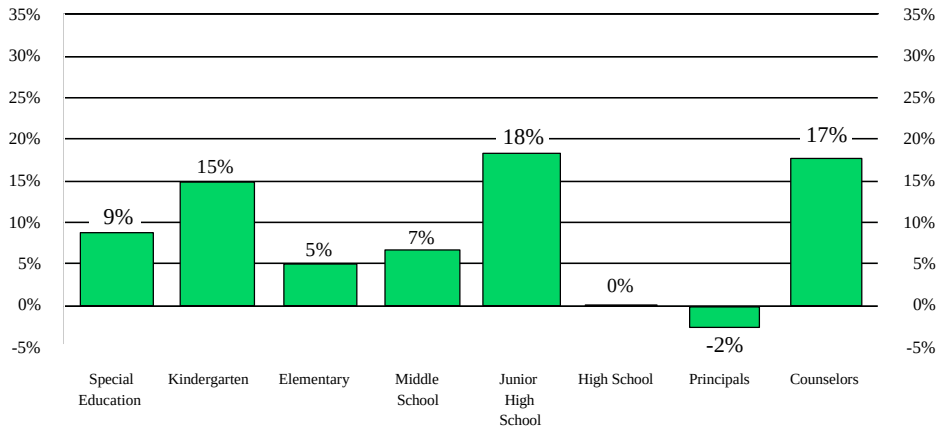
Table 2: Rates of Change in Enrollments by Grade Level from the previous Year

	K	1-4	5-6	7-8	9-12	Special Education	Total
1992-93	2%	0%	2%	2%	2%	-2%	2%
1993-94	6%	1%	1%	2%	2%	-7%	2%
1994-95	4%	1%	0%	2%	1%	3%	1%
1995-96	4%	2%	1%	0%	2%	-6%	1%
1996-97	1%	2%	2%	0%	2%	-2%	2%

Workforce Growth

From 1993 to 1997, the areas of greatest percentage *growth* in educators are junior high school teachers at 18 percent, guidance counselors at 17 percent, and kindergarten teachers at 15 percent. The areas of *decline* or *low growth* are generally among administrators. The areas with the largest increase in numbers are elementary teachers (862) and jr. high school teachers (826).

Figure 1: Workforce Growth by Position



Change in the Number of Educators

All broad categories of educators (administrators, teachers, staff) have increased in size over the past 5 years. The greatest percentage change from 1993 to 1997 has been in professional staff (8.4 %), and the least in administration (6.1%). The entire educator workforce has shown a 6.6 percent increase, or 3,620 more educators in 1996-97 than in 1992-93.

Table 3: Growth in Tennessee Educator Workforce 1992-93 to 1996-97

	93	94	95	96	97	Number Change 1993 to 1997	Percent Change 1993 to 1997
All Educators	54903	56424	56750	58130	58523	3620	6.6%
Change from Previous Year	1001	1521	326	1380	393		
Percent Change	1.9%	2.8%	0.6%	2.4%	0.7%		
Administrators	2487	2530	2556	2578	2638	151	6.1%
Change from Previous Year	19	43	26	22	60		
Percent Change	0.8%	1.7%	1.0%	0.9%	2.3%		
Professional Staff	5199	5346	5436	5598	5637	438	8.4%
Change from Previous Year	302	147	90	162	39		
Percent Change	6.2%	2.8%	1.7%	3.0%	0.7%		
Teachers	47217	48548	48758	49954	50248	3031	6.4%
Change from Previous Year	680	1331	210	1196	294		
Percent Change	1.5%	2.8%	0.4%	2.5%	0.6%		

Female Educators

The area with the greatest percentage of female educators is professional staff at 82 percent, the lowest is administration at 36 percent. There has been a steady incremental increase in the percentage of administrators over the past 5 years. Among teaching categories early childhood education, kindergarten, and special education show the greatest percent female. High school and Jr. high school show the lowest percentage of females. Among staff, librarians are 96 percent female.

Table 4: Percentage Female by Educational Assignment in Tennessee

Female	1993	1994	1995	1996	1997
All Educators	77%	77%	77%	77%	77%
Administrators	30%	31%	33%	34%	36%
Professional Staff	81%	81%	82%	82%	82%
Teachers	79%	79%	79%	78%	79%
TEACHERS					
Special Education	90%	89%	89%	88%	88%
Early Childhood Ed.	98%	98%	98%	99%	97%
Kindergarten Teachers	99%	99%	99%	98%	98%
Elementary Teachers	91%	91%	91%	90%	90%
Middle School Teachers	84%	84%	83%	83%	83%
Jr. High Teachers	66%	67%	68%	68%	68%
High school Teachers	55%	55%	55%	55%	55%
ADMINISTRATORS					
Superintendents	9%	10%	13%	13%	12%
Asst. Superintendents	25%	30%	36%	38%	45%
Elem. Principals	36%	38%	40%	41%	43%
Sec. Principals	14%	15%	14%	16%	15%
STAFF					
Guidance Counselors	82%	82%	83%	83%	84%
Librarians	97%	97%	97%	96%	96%
Other Professional Staff	75%	75%	76%	77%	77%

Black Educators

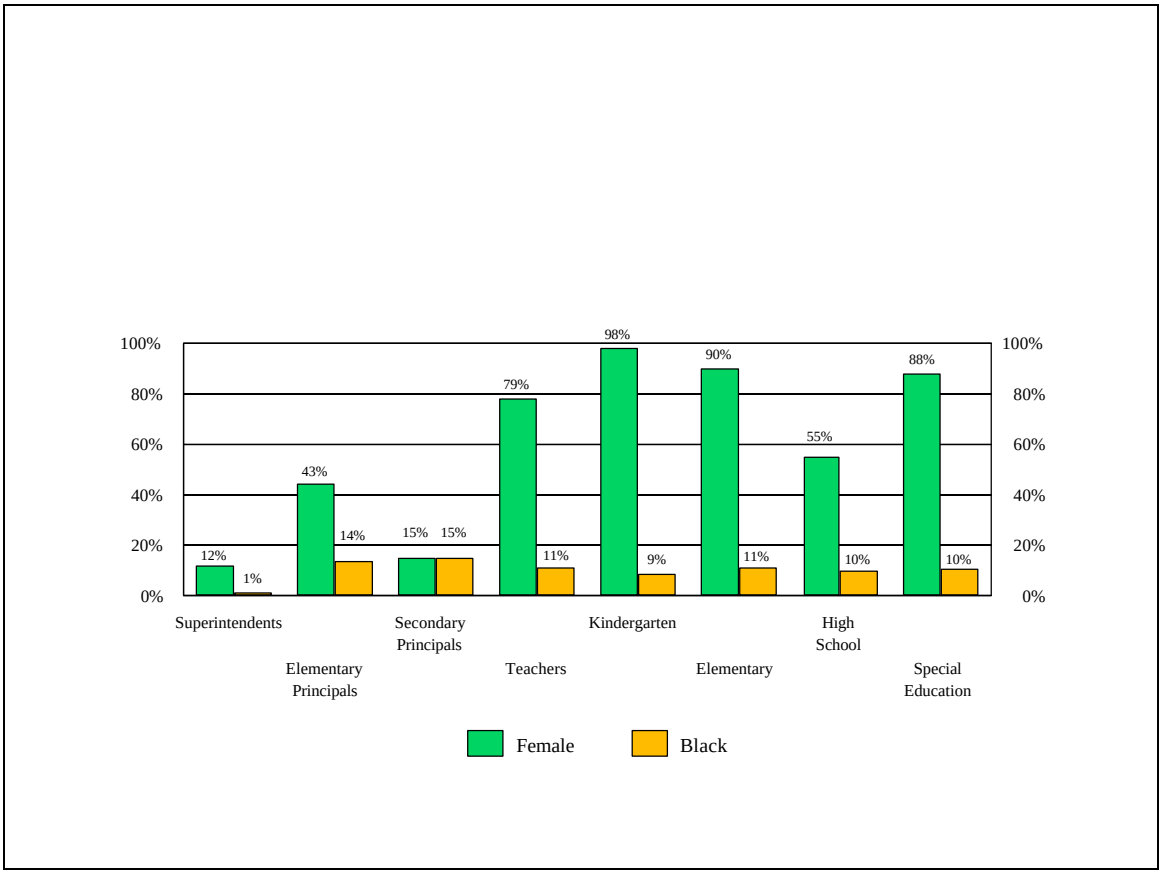
Black educators represented 11 percent of the total educator workforce in 1996-97; 16 percent of all administrators, but only 1 percent of all superintendents are black. Among teachers, blacks have the highest representation among middle school teachers at 12 percent. Among staff, 14 percent are guidance counselors, while only 8 percent are librarians.[1]

Table 5: Percentage of Educators Who Are Black by Educational Assignment in Tennessee 1992-93 to 1996-97

Black	93	94	95	96	97
All Educators	12%	12%	11%	11%	11%
Administrators	16%	16%	16%	17%	16%
Professional Staff	12%	11%	11%	11%	10%
Teachers	11%	11%	11%	11%	11%
Special Education	11%	11%	11%	11%	10%
Early Childhood Ed.	5%	6%	6%	6%	5%
Kindergarten Teachers	9%	9%	9%	9%	9%
Elementary Teachers	12%	12%	12%	12%	11%
Middle School Teachers	13%	13%	13%	12%	12%
Jr. High Teachers	11%	10%	11%	12%	11%
High school	10%	11%	11%	10%	10%
Superintendents	1%	1%	1%	1%	1%
Asst. Superintendents	21%	22%	20%	23%	19%
Elem. Principals	12%	13%	14%	14%	14%
Sec. Principals	16%	16%	15%	15%	15%
Guidance Counselors	18%	17%	17%	16%	14%
Librarians	9%	9%	9%	9%	8%
Other Professional Staff	10%	10%	10%	10%	9%

[1] It is important to highlight that the number of "unknowns" in terms of race/ethnicity has increased from 3450 in 1995-96 to 5039 in 1996-97. Thus, the percentage changes in race/ethnicity need to be considered in light of this decline in the reporting of race/ethnicity by educators.

Figure 2: Female and Black Educators as Percent of Educator Workforce



Workforce Dynamics

In any given year the workforce is composed of those who remained from the previous year and those hired. Those hired may be new teachers (no experience) or returning teachers (have previously taught).

Educators Who Remain from One Year to the Next

The percentage of educators who remain from one year to the next has remained stable over the past 5 years. Approximately 91 percent of teachers, 99 percent of administrators, and 95 percent of professional staff are composed of educators who were retained from the previous year's workforce.

Table 6: Tennessee Educators Remaining in the Workforce from the Previous Year 1993-1997

	93	94	95	96	97
Teachers					
Number Remaining	42410	44365	44298	45519	45631
Percent Remaining	90%	91%	91%	91%	91%
Administrators					
Number Remaining	2468	2515	2504	2553	2608
Percent Remaining	99%	99%	98%	99%	99%
Professional Staff					
Number Remaining	4884	5093	5092	5330	5366
Percent Remaining	94%	95%	94%	95%	95%

Educators Who Leave

The attrition rate (the percent of those who leave from one year to the next) for the total workforce has increased from 6 percent to 8 percent from 1994-95 to 1995-96. All areas show an increase in attrition over time.

Table 7: Attrition Rates for Tennessee Educators 1991-92 to 1995-96

	92	93	94	95	96	5 Year Average
Total Workforce						
Number Exiting	4140	2930	4530	3348	4525	3,895
Percent Exiting	8%	5%	8%	6%	8%	7%
Teachers						
Number Exiting	3536	2530	3898	2920	3964	3,370
Percent Exiting	8%	5%	8%	6%	8%	7%
Administrators						
Number Exiting	192	105	193	122	166	156
Percent Exiting	8%	4%	8%	5%	6%	6%
Professional Staff						
Number Exiting	412	295	439	306	395	369
Percent Exiting	8%	6%	8%	6%	7%	7%

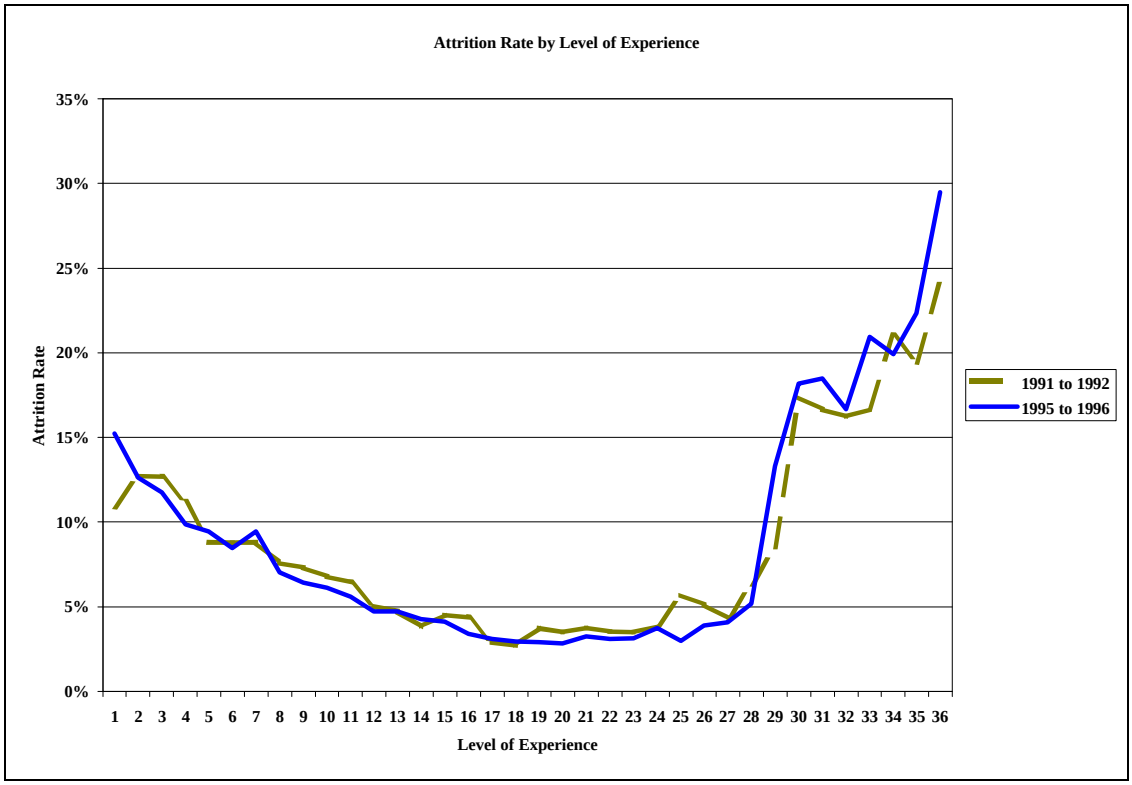
Educator Attrition by Level of Experience

Attrition rates vary greatly by level of experience. New educators with less than 4 years experience exit at rates in excess of 10 percent per year. Educators with over 10 years experience and less than 28 years exit at rates that rarely exceed 5 percent. Above 27 years, the rate of attrition increases greatly. (see figure 3)

Table 8: Attrition Rate by Years of Experience

Level of Experience	**92**	**93**	**94**	**95**	**96**		Level of Experience	**92**	**93**	**94**	**95**	**96**
0	11%	11%	14%	12%	15%		17	3%	2%	4%	2%	3%
1	13%	9%	12%	10%	13%		18	4%	2%	3%	2%	3%
2	13%	6%	11%	9%	12%		19	4%	1%	3%	2%	3%
3	11%	7%	10%	8%	10%		20	4%	2%	4%	2%	3%
4	9%	8%	10%	8%	9%		21	4%	2%	4%	2%	3%
5	9%	6%	9%	7%	8%		22	3%	3%	4%	3%	3%
6	9%	6%	8%	7%	9%		23	4%	2%	4%	2%	4%
7	8%	5%	8%	6%	7%		24	6%	3%	5%	3%	3%
8	7%	4%	7%	5%	6%		25	5%	3%	5%	4%	4%
9	7%	4%	6%	4%	6%		26	4%	4%	6%	4%	4%
10	6%	4%	6%	4%	6%		27	6%	4%	6%	4%	5%
11	5%	3%	9%	4%	5%		28	9%	8%	9%	8%	13%
12	5%	3%	6%	4%	5%		29	17%	14%	19%	13%	18%
13	4%	3%	5%	4%	4%		30	17%	13%	15%	11%	19%
14	5%	2%	4%	3%	4%							
15	4%	2%	5%	3%	3%							
16	3%	2%	4%	2%	3%							

Figure 3: Attrition Rate by Level of Experience



Attrition Rates of New Teachers

The attrition rate for new teachers is significantly higher compared to mid-career educators. For new entrants in 1993, only 66.3 % remained after 4 years. Approximately 14 percent of new educators leave after the first year. Of those that leave, about 2 percent returned to higher education in Tennessee. *For example*, in 1993 there were 2827 new entrants. Next year 322 left leaving 2505 or 88.6% of the original 2827. Of the 322 that left 56 of them entered Tennessee colleges and universities.

Table 9: Attrition Rates of New Entrants

		Percent Exiting				
	Percent of Entrants Exiting	1 Year	2 Years	3 Years	4 Years	Percent Remaining
1993	33.7% after 4 years	11.4%	9.6%	6.7%	6.2%	66.3%
1994	29.9% after 3 years	14.0%	7.9%	7.9%		70.1%
1995	22.2% after 2 years	11.8%	10.4%			77.8%
1996	15.4% after 1 year	15.4%				84.6%

Returning to Teaching

Reentrants to the Education Workforce

Reentrants are those educators who return to teaching after a number of years out of public education. The longer the duration of exit from education, the lower the probability that an educator will return.

The rates at which educators return after a one-year absence have increased since 1992 (7.4 % in 1992 to 12.6% in 1995). Reentry rates for women with less than 20 years of experience (of child-bearing age) is higher from 1992 for the first year of reentry (11.9% in 1992 to 18.5% in 1995). Teachers have a slightly higher rate of reentry than educators as a whole. Administrators have relatively low first year reentry rates (2.1% to 4.1%---see table 13).

Table 10: Reentry Rates for Tennessee Educators, All Educators

Number of Years Post Exit, of Reentry	1	2	3	4	5	6	7	Total Percent Reentry	Total Reentry
Year of Exit									
89	7.2%	2.7%	3.2%	1.9%	1.1%	1.0%	1.0%	18.0%	502
90	5.8%	4.5%	2.6%	2.0%	1.4%	0.9%		17.3%	338
91	8.2%	3.3%	2.0%	1.7%	0.7%			15.9%	437
92	**7.4%**	7.7%	2.0%	1.2%				18.3%	724
93	9.6%	3.2%	2.1%					14.9%	417
94	11.2%	3.8%						15.0%	660
95	**12.6%**							12.6%	409

Table 11: Reentry Rates- Female Educators, with Less than 20 Years Experience

Number of Years Post Exit, of Reentry	1	2	3	4	5	6	7	Total Percent Reentry	Total Reentry
Year of Exit									
89	10.8%	4.0%	4.5%	2.3%	1.5%	1.7%	1.4%	26.3%	401
90	9.0%	6.2%	3.6%	3.0%	2.2%	1.4%		25.3%	257
91	12.9%	5.5%	3.3%	2.7%	0.8%			25.1%	326
92	**11.9%**	9.4%	3.0%	1.8%				26.1%	519
93	14.9%	4.7%	3.1%					22.7%	318
94	16.9%	5.9%						22.8%	522
95	**18.5%**							18.5%	304

Table 12: Reentry Rates-Teachers

Number of Years Post Exit, of Reentry	1	2	3	4	5	6	7	Total Percent Reentry	Total Reentry
Year of Exit									
89	7.6%	2.8%	3.3%	2.0%	1.2%	1.0%	1.1%	18.9%	486
90	6.0%	4.6%	2.9%	2.1%	1.5%	1.0%		18.0%	315
91	8.7%	3.7%	2.2%	1.7%	0.6%			16.9%	400
92	**7.9%**	7.5%	2.3%	1.2%				19.0%	640
93	10.1%	3.4%	2.2%					15.7%	377
94	12.0%	4.2%						16.2%	613
95	**13.5%**							13.5%	381

Table 13: Reentry Rates-Administrators

Number of Years Post Exit, of Reentry	1	2	3	4	5	6	7	Total Percent Reentry	Total Reentry
Year of Exit									
89	0.0%	2.2%	3.3%	0.0%	0.0%	0.0%	0.0%	5.6%	5
90	2.8%	4.2%	0.0%	1.4%	0.0%	0.0%		8.3%	6
91	0.8%	0.0%	0.0%	0.8%	0.8%			2.5%	3
92	**2.1%**	11.1%	0.0%	0.5%				13.8%	26
93	5.7%	1.9%	1.0%					8.6%	9
94	2.6%	1.0%						3.6%	7
95	**4.1%**							4.1%	5

New Teachers and Returning Teachers

The Composition of Educator Hires

The teaching workforce in any one school year is composed of 5% who are new entrants and 4% returning teachers who were not in the workforce last year. Administrators have only 1 percent who are returnees, and less than 1 percent who are new entrants. Professional staff shows 2 percent new entrants and 3 percent who are returnees. These percentages are quite stable over the five year period. In all cases (teachers, administrators, professional staff) "new" hires do not exceed 56 percent of all hires, showing the heavy reliance on returning educators as a source of supply in hiring. This is particularly true for administrators and professional staff.

Table 14: Hiring: Returnees and New Educators in Tennessee 1989-90 to 1996-97 (Number and Percent)

	1993	1994	1995	1996	1997
Teachers					
Total Entrants	4807	4183	4460	4435	4617
Returnees Numbers	2096	1854	2190	2127	2023
Returnees Percent	4%	4%	4%	4%	4%
Returnees as a Percent of Hires	*44%*	*44%*	*49%*	*48%*	*44%*
New Entrant Numbers	2711	2329	2270	2308	2594
New Entrant Percent	6%	5%	5%	5%	5%
New Entrants as a Percent of Hires	*56%*	*56%*	*51%*	*52%*	*56%*
Administrators					
Total Entrants	19	15	52	25	30
Returnees Numbers	18	15	51	24	25
Returnees Percent	1%	1%	2%	1%	1%
Returnees as a Percent of Hires	*95%*	*100%*	*98%*	*96%*	*83%*
New Entrant Numbers	1	0	1	1	5
New Entrant Percent	0%	0%	0%	0%	0%
New Entrants as a Percent of Hires	*5%*	*0%*	*2%*	*4%*	*17%*
Professional Staff					
Total Entrants	315	253	344	268	271
Returnees Numbers	200	154	221	156	148
Returnees Percent	4%	3%	4%	3%	3%
Returnees as a Percent of Hires	*63%*	*61%*	*64%*	*58%*	*55%*
New Entrant Numbers	115	99	123	112	123
New Entrant Percent	2%	2%	2%	2%	2%
New Entrants as a Percent of Hires	*37%*	*39%*	*36%*	*42%*	*45%*

New, Retained, Returning and Departing Educators

The profiles of the supply of educators in any one year (retained, re-entrants, new) generally vary as would be expected. Educator dynamics examines the number of educators retained from one year to the next (the largest source of supply), newly hired educators with no experience, and re-entrants or educators who have had previous experience in teaching. The characteristics of educators (administrators, staff, teachers) are shown in table 15. Differences among these categories of educators are significant. The percentage of blacks as administrators is much higher than their representation in staff and teachers. Of note is the fact that the newly hired teachers (new and re-entrants) are 8% black teachers compared to 12% of those who left. The pattern paints a dismal picture for sustaining minority teachers in the classroom.

Table 15: Characteristics of Educators Who Stayed, Left, or Entered the Education Workforce in 1996-97

		~ Left Previous Year	Retained	Re-Entrant	New
Administrator	Number	166	2608	25	+
	Percent	6%	99%	1%	+
	Age	57	50	45	+
	Experience	30	24	18	+
	Average Salary	$ 57,714	$ 53,002	$ 51,310	+
	Change in Average Salary*		2%	10%	+
	Percent Black	20%	16%	16%	+
Staff	Number	395	5366	148	123
	Percent	7%	95%	3%	2%
	Age	51	48	42	32
	Experience	21	19	9	0
	Average Salary	$ 38,272	$ 40,712	$ 31,757	$ 26,495
	Change in Average Salary*		3%	3%	6%
	Percent Black	14%	11%	4%	2%
Teacher	Number	3964	45631	2023	2594
	Percent	8%	91%	4%	5%
	Age	45	44	36	29
	Experience	14	15	7	0
	Average Salary	$ 31,694	$ 34,464	$ 29,514	$ 25,096
	Change in average Salary*		3%	4%	5%
	Percent Black	12%	11%	8%	8%

+ Information suppressed due to small numbers
* Change in salary for the same group in the previous year
~The percent for attrition is based on the previous year totals

Movement of Educators Among Districts and Positions

Across the state, higher percentages of teachers remain in the same district and position in 1997 compared to 1993. Among teachers 2 percent change district from one year to the next, while only 1 percent of administrators do, and only 1 percent of professional staff do. For those educators who remain in their district from the previous year, in 1996-97, 6 percent of teachers changed position (changes within teaching or to administration or staff), 15 percent of administrators changed position, and 7 percent of professional staff changed position.

Table 16: Percentage of Retained Educators in Tennessee Who Changed District or Position

Teachers	93	94	95	96	97
Same District/Same Position	90%	93%	93%	92%	93%
Same District/Different Position	8%	6%	6%	6%	6%
Different District/Same Position	1%	1%	1%	1%	1%
Different District/Different Position	1%	1%	1%	1%	1%

Administrator					
Same District/Same Position	82%	88%	85%	88%	84%
Same District/Different Position	17%	11%	14%	12%	15%
Different District/Same Position	0%	0%	0%	0%	0%
Different District/Different Position	1%	1%	1%	1%	1%

Professional Staff					
Same District/Same Position	85%	92%	92%	92%	92%
Same District/Different Position	13%	7%	6%	7%	7%
Different District/Same Position	1%	1%	1%	1%	1%
Different District/Different Position	1%	0%	1%	0%	0%

The Higher Education Connection

The analysis of institutions of higher education focuses on the number of candidates produced and what percentage of those candidates actually enter teaching. This analysis examines differences in public versus private colleges and universities, the percent entering by race/ethnicity and gender, and how particular colleges and universities provide entrants for particular districts.

Public First Time Licensure Recipients From Public Colleges and Universities

The number of bachelor degree recipients (BAs) seeking[1] first time licensure in public institutions of higher education (IHEs) has dropped from a high in 1993 of 1350 persons, to a low in 1995 of 981 persons, to 1034 in 1997. The percent of white males has increased since 1993, but fallen from a high of 19% in 1995. Blacks graduates (male and female) increased to 8% (70 persons) of recipients in 1996, then dropped to 6% (60 persons) in 1997.

Table 17: Bachelor's Degree Persons Seeking *First Time* Teacher Licensure
Public Colleges and Universities

	91		92		93		94		95		96		97	
White Female	903	**80%**	1022	**81%**	1088	**81%**	886	**78%**	734	**75%**	818	**76%**	795	**77%**
White Male	176	**16%**	171	**14%**	181	**13%**	179	**16%**	183	**19%**	168	**16%**	172	**17%**
Black Female	37	**3%**	51	**4%**	62	**5%**	49	**4%**	48	**5%**	62	**6%**	52	**5%**
Black Male	8	**1%**	5	**0%**	7	**1%**	9	**1%**	8	**1%**	18	**2%**	8	**1%**
Hispanic Female	2	**0%**	4	**0%**	6	**0%**			4	**0%**	3	**0%**	3	**0%**
Hispanic Male	2	**0%**			1	**0%**					3	**0%**		**0%**
Grand Total*	1128		1257		1350		1130		981		1077		1034	

*Includes other groups.

The number of public post-baccalaureates (including non-degree) seeking first time licensure in public IHEs has dropped from a high in 1996 of 942 persons, to 766 in 1997. However, the long-term trend has been a marked increase in these public Post-BAs, as can be observed from 1991 to 1997. The percent white male is much higher for post-baccalaureates at around 19% to 20% for the years observed . The percent black is also higher at 11% in 1996 (114 persons) and 10% in 1997 (73 persons).

Table 18: Post Baccalaureates Seeking[2] *First Time* Teacher Licensure (Includes Non-Degrees]
Public Colleges and Universities

	91		92		93		94		95		96		97	
White Female	312	**73%**	565	**75%**	430	**71%**	468	**68%**	503	**69%**	616	**65%**	522	**68%**
White Male	95	**22%**	142	**19%**	124	**20%**	147	**21%**	154	**21%**	206	**22%**	158	**21%**
Black Female	10	**2%**	33	**4%**	32	**5%**	50	**7%**	39	**5%**	74	**8%**	52	**7%**
Black Male	5	**1%**	6	**1%**	9	**1%**	10	**1%**	14	**2%**	30	**3%**	21	**3%**
Hispanic Female	4	**1%**	4	**1%**	6	**1%**	3	**0%**	5	**1%**	5	**1%**	6	**1%**
Hispanic Male			1	**0%**			2	**0%**	2	**0%**	1	**0%**	4	**1%**
Grand Total*	426		752		607		685		732		942		766	

*Includes other groups

[1]"Seeking" is the term used by the Tennessee Higher Education Commission to describe individuals training to obtain such licensure

First Time Licensure Recipients from Private Colleges and Universities

For private schools the number of BAs seeking first time licensure in IHEs has increased to an historical high of 822 in 1997. The percent black remains low around 2% to 4% (20 persons in 1997).

Table 19: Bachelor's Degree Persons Seeking *First Time* Teacher Private Colleges and Universities

	91		92		93		94		95		96		97	
White Female	601	**80%**	601	**77%**	630	**82%**	525	**77%**	500	**75%**	556	**76%**	636	**77%**
White Male	118	**16%**	115	**15%**	116	**15%**	139	**20%**	125	**19%**	130	**18%**	153	**19%**
Black Female	20	**3%**	27	**3%**	12	**2%**	10	**1%**	18	**3%**	23	**3%**	17	**2%**
Black Male	7	**1%**	5	**1%**	3	**0%**	3	**0%**	11	**2%**	6	**1%**	3	**0%**
Hispanic Female	1	**0%**	9	**1%**	1	**0%**	3	**0%**	5	**1%**	3	**0%**	6	**1%**
Hispanic Male	2	**0%**			1	**0%**	3	**0%**	2	**0%**	3	**0%**		
Grand Total*	753		780		765		683		664		727		822	

*Includes other groups

For private IHE post-baccalaureates the number has increased to an historical high of 257 in 1997. Here the percentage of blacks are roughly comparable to public post-baccalaureates at 9% in 1997 (22 blacks).

Table 20: Post BAs Seeking *First Time* Teacher Licensure, or Private Colleges and Universities

	91		92		93		94		95		96		97	
White Female	126	**71%**	124	**63%**	111	**58%**	132	**65%**	142	**59%**	144	**61%**	164	**64%**
White Male	36	**20%**	48	**24%**	59	**31%**	48	**24%**	65	**27%**	66	**28%**	66	**26%**
Black Female	8	**5%**	9	**5%**	15	**8%**	16	**8%**	20	**8%**	16	**7%**	18	**7%**
Black Male	3	**2%**	5	**3%**	3	**2%**	6	**3%**	9	**4%**	5	**2%**	4	**2%**
Hispanic Female	1	**1%**	2	**1%**			1	**0%**	1	**0%**	3	**1%**		
Hispanic Male	2	**1%**			1	**1%**					2	**1%**		
Grand Total*	177		198		190		204		240		238		257	

*Includes other groups.

Entering the Profession

In general, the number and proportion of college and university graduates who enter teaching in Tennessee is an indicator of the attractiveness of the teaching profession (how many graduates want to teach) and the education job market (whether there are jobs for those who want to become teachers). Graduates may decide not to enter teaching because of other opportunities, because teaching is no longer attractive to them, graduates who want to teach may not be able to find jobs, or graduates may be taking jobs in other states.

Table 21 shows 2 year yield rates (that is the percent of candidates who actually enter teaching) for public BAs seeking licensure for the first time. That latest year reported is 1996, so we can track entrants into Tennessee public education into 1996 and 1997. Yields for black males have increased substantially to 72% (that is, 72% of those trained over two years enter Tennessee public education). In general, all rates are about 50%, except for Hispanic females (33%) in 1996.

Table 21: Yield Rates for Public BAs Seeking *First Time* Teacher Licensure

		Year of Licensure					
		91	92	93	94	95	96
White	Female	40%	55%	56%	54%	59%	57%
White	Male	36%	49%	57%	50%	56%	51%
Black	Female	54%	67%	68%	65%	77%	74%
Black	Male	50%	100%	57%	56%	50%	72%
Hispanic	Female	50%	50%	67%		25%	33%
Hispanic	Male			100%			
Grand Total*		40%	55%	57%	54%	59%	57%

*Total includes other groups.

For post-baccalaureates, the yields are noticeably lower than for the BAs.

Table 22: Yield Rates for Public Post BAs Seeking *First Time* Teacher Licensure

		Year of Licensure					
		91	92	93	94	95	96
White	Female	25%	38%	20%	29%	23%	22%
White	Male	20%	42%	31%	28%	19%	25%
Black	Female	40%	45%	41%	42%	31%	23%
Black	Male	20%	33%	56%	30%	36%	20%
Hispanic	Female		50%		33%	40%	
Hispanic	Male						100%
Asian/Pacific Islander	Female					14%	20%
Asian/Pacific Islander	Male					33%	
Native American	Female			50%	100%		
Native American	Male				100%		
Other	Female			100%		50%	
Other	Male					100%	50%
Grand Total*		24%	39%	24%	29%	23%	23%

*Total includes other groups.

Yields of Private IHE First Time Licensure Recipients

For private BAs seeking licensure for the first time, the yield rates are substantially lower than for the public IHEs for all categories. The highest yield (substantially higher) is for black females at 61%.

Table 23: Yield rates for Private BAs Seeking *First Time* Teacher Licensure

		Year of Licensure					
		91	92	93	94	95	96
White	Female	29%	37%	35%	35%	36%	35%
White	Male	17%	39%	34%	33%	31%	38%
Black	Female	50%	41%	33%	40%	61%	61%
Black	Male	29%	60%	33%		36%	33%
Hispanic	Female					60%	33%
Hispanic	Male				33%	0%	33%
Grand Total*		27%	38%	35%	35%	36%	36%

*Total includes other groups.

For private post-baccalaureates the yields are lower as compared to private BAs. However, these yields are a bit higher than what was observed in the public post-baccalaureates.

Table 24:Yield Rates for Private Post BAs Seeking *First Time* Teacher Licensure

		Year of Licensure					
		91	92	93	94	95	96
White	Female	33%	37%	43%	25%	29%	37%
White	Male	19%	52%	37%	40%	28%	29%
Black	Female	75%	44%	53%	56%	40%	44%
Black	Male	67%	80%	67%	67%	44%	20%
Hispanic	Female		50%				33%
Hispanic	Male	50%					100%
Grand Total*		32%	43%	42%	32%	30%	35%

*Total includes other groups.

Entrance in Public Education by College Major

Table 25 shows the *number* of public IHE majors, for all degree levels, who enter over time, and the *percent* who enter. Since 1995, Tennessee has required an academic major in all teaching areas except special education, physical education, and some vocational areas. These tables track first time entrants from Tennessee colleges and universities (i.e., no previous experience has been recorded). Eight broad categories are used that are comprised of numerous majors. (See appendix 2 for details.)

For public colleges and universities the greatest number of entrants over the past 5 years has been those with majors in early childhood and elementary teacher education. The greatest percentage of persons entering teaching has been early childhood and elementary education, followed by fine arts, and special education

Table 25: Public IHE Majors by Area, Number of Entrants from 1993 to 1997:
***First Time* Licensure for Teaching, Grouped by Area**

Major	No Record of Entry	Total Entry	Grand Total	Percent Entry
EARLY CHILDHOOD AND ELEMENTARY EDUCATION	1225	2456	3681	**67%**
SECONDARY EDUCATION	450	541	991	55%
FINE ARTS	98	146	244	60%
HEALTH AND PHYSICAL EDUCATION	171	166	337	49%
VOCATIONAL EDUCATION	114	117	231	51%
SPECIAL EDUCATION	288	364	652	56%
GENERAL EDUCATION	2020	854	2874	30%
OTHER PROFESSIONAL STAFF	289	55	344	16%
ALL	4655	4699	9354	50%

Table 26 shows the *number* of private IHE majors, for all degree levels, who enter over time, and the *percent* who enter. Again, these track first time entrants (i.e., no previous experience has been recorded)

As with the public IHEs, the greatest number of entrants over the past 5 years has been early childhood and elementary teacher education. The greatest yield has been in health and physical education (very small numbers), followed by special education and early childhood and elementary teacher education.

Table 26: Private IHE Majors by Area, Number of Entrants from 1993 to 1997:

***First Time* Licensure for Teaching, Grouped by Area**

	No Record of Entry	Total Entry	Grand Total	Percent Entry
EARLY CHILDHOOD AND ELEMENTARY EDUCATION	1,167	850	2,017	42%
SECONDARY	828	415	1,243	33%
FINE ARTS	116	56	172	33%
HEALTH AND PHYSICAL EDUCATION	1	1	2	50%
VOCATIONAL EDUCATION	44	13	57	23%
SPECIAL EDUCATION	99	76	175	**43%**
GENERAL	677	347	1,024	34%
OTHER PROFESSIONAL STAFF	372	77	449	17%
MISCELLANEOUS	19	1	20	5%
ALL	3418	1898	5316	36%

Primary Teaching Positions by College Majors

Teacher preparation programs supply teachers to many teaching positions outside their majors, while these data do not track out-of-field as defined by the state, they do show the pipeline into the classroom.

Table 27 shows the range of primary positions that public IHE majors fill upon entry into the educator workforce for years 1993-1997. Early childhood and elementary education majors provide 50 percent of their majors directly to elementary teachers, 12 percent to kindergarten teachers, 19 percent to middle school teachers, and 11 percent to junior high school students. Also, early childhood and elementary education majors have the largest number of graduates from 1993-97 at 2456 people. Other majors show a range of supply to different positions. Special education provides 89 percent of its majors directly to special education. (see appendix 2 for details.)

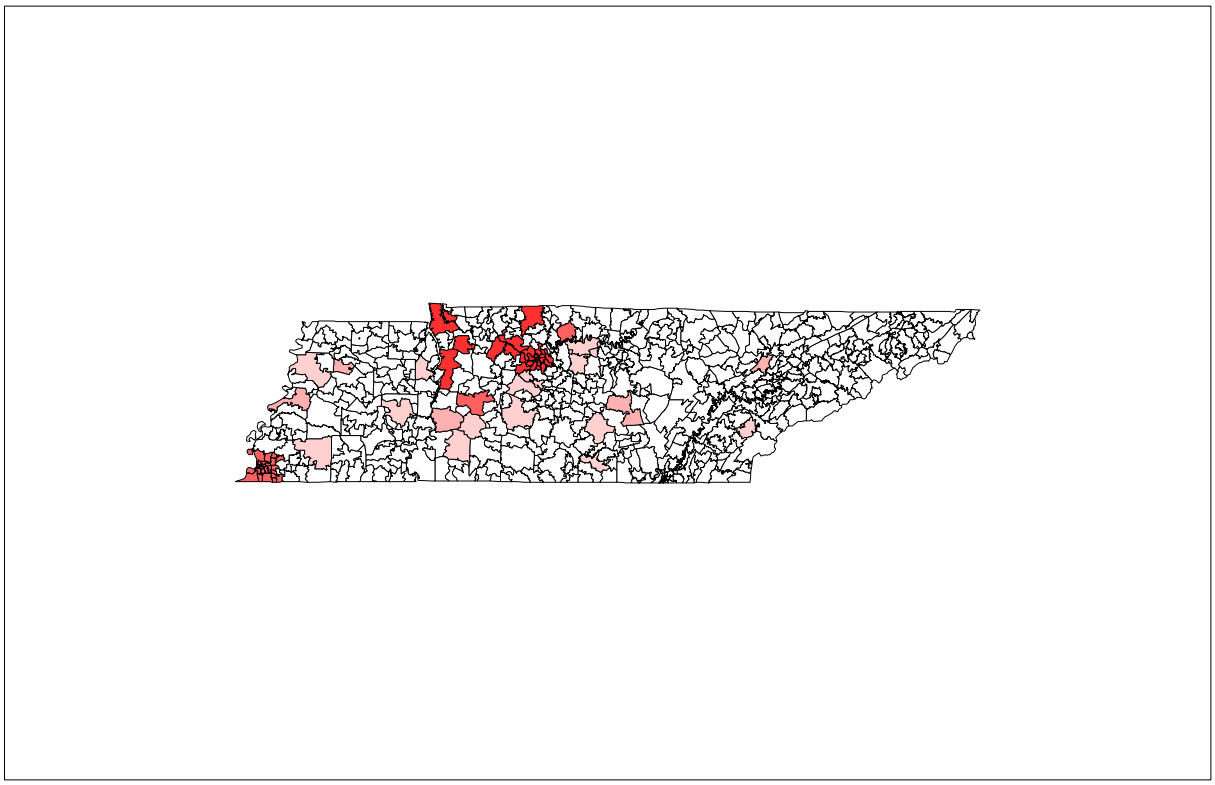
Table 27: Public IHE Majors to Primary Position on Entry from 1993-1997

IHE Major	Elem. Principals	Guidance Counselors	Librarians	Other Professional Staff	Special Education	Early Childhood Education	Kindergarten Teachers	Elementary Teachers	Middle School Teachers	Jr. High School Teachers	HS Business	HS Language Arts	HS Social Studies	HS Foriegn Language	HS Mathematics	HS Science	HS Vocational Ed.	HS Other HS	Grand Total
EARLY CHILDHOOD AND ELEMENTARY EDUCATION MAJORS																			
Total	0	9	10	16	93	19	300	**1230**	461	264	0	1	0	0	3	6	3	41	2456
Percent	0%	0%	0%	1%	4%	1%	12%	**50%**	19%	11%	0%	0%	0%	0%	0%	0%	0%	2%	
SECONDARY MAJORS																			
Total	0	2	2	1	27	0	0	13	27	**118**	3	54	52	21	73	30	11	107	541
Percent	0%	0%	0%	0%	5%	0%	0%	2%	5%	**22%**	1%	10%	10%	4%	13%	6%	2%	20%	
FINE ARTS MAJORS																			
Total	0	0	0	38	16	0	4	**146**	2	5	0	4	0	0	4	0	2	70	292
Percent	0%	0%	0%	13%	5%	0%	1%	**50%**	1%	2%	0%	1%	0%	0%	1%	0%	1%	24%	
HEALTH AND PHYSICAL EDUCATION MAJORS																			
Total	1	0	0	0	5	0	1	**65**	10	28	0	0	5	0	3	8	0	40	166
Percent	1%	0%	0%	0%	3%	0%	1%	**39%**	6%	17%	0%	0%	3%	0%	2%	5%	0%	24%	
VOCATIONAL EDUCATION MAJORS																			
Total	0	3	0	2	1	2	6	17	2	7	14	0	4	0	4	2	**43**	10	117
Percent	0%	3%	0%	2%	1%	2%	5%	15%	2%	6%	12%	0%	3%	0%	3%	2%	**37%**	9%	
SPECIAL EDUCATION MAJORS																			
Total		1		5	**325**	6	2	10	7	5	0	0	0	0	0	0	0	3	364
Percent	0%	0%	0%	1%	**89%**	2%	1%	3%	2%	1%	0%	0%	0%	0%	0%	0%	0%	1%	
GENERAL																			
Total	0	8	5	35	60	7	47	**245**	101	91	14	18	34	16	21	36	35	81	854
Percent	0%	1%	1%	4%	7%	1%	6%	**29%**	12%	11%	2%	2%	4%	2%	2%	4%	4%	9%	
OTHER PROFESSIONAL STAFF																			
Total	0	15	0	**28**	7	0	0	2	1	0	1	0	0	0	0	0	0	1	55
Percent	0%	27%	0%	**51%**	13%	0%	0%	4%	2%	0%	2%	0%	0%	0%	0%	0%	0%	2%	

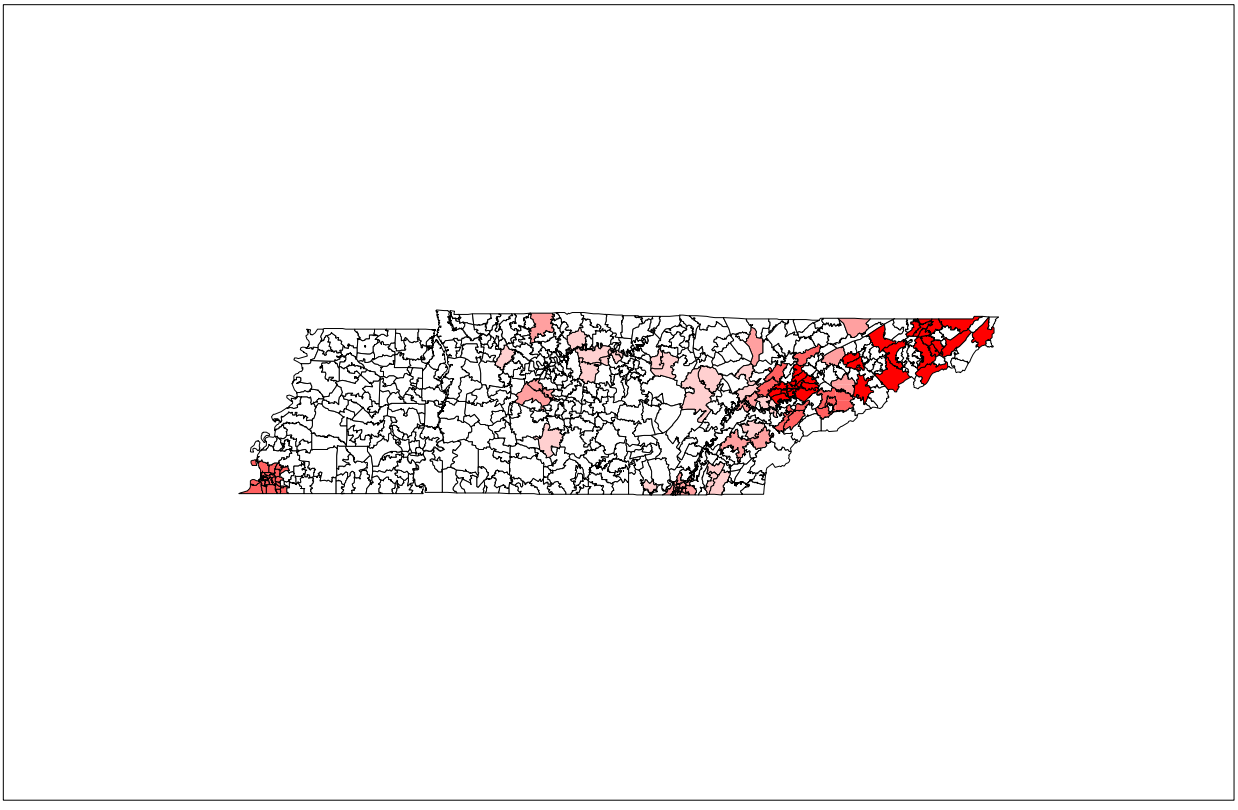
Regional Supply

The institutions of higher education in Tennessee play an important role in creating the supply of candidates for teaching and administering Tennessee public education. The following pages present maps showing the districts to which Tennessee public institutions supplied entrants for the years 1993 to 1997. The shaded areas in the map indicate what districts received entrants, and the darker the tone the more entrants were received.

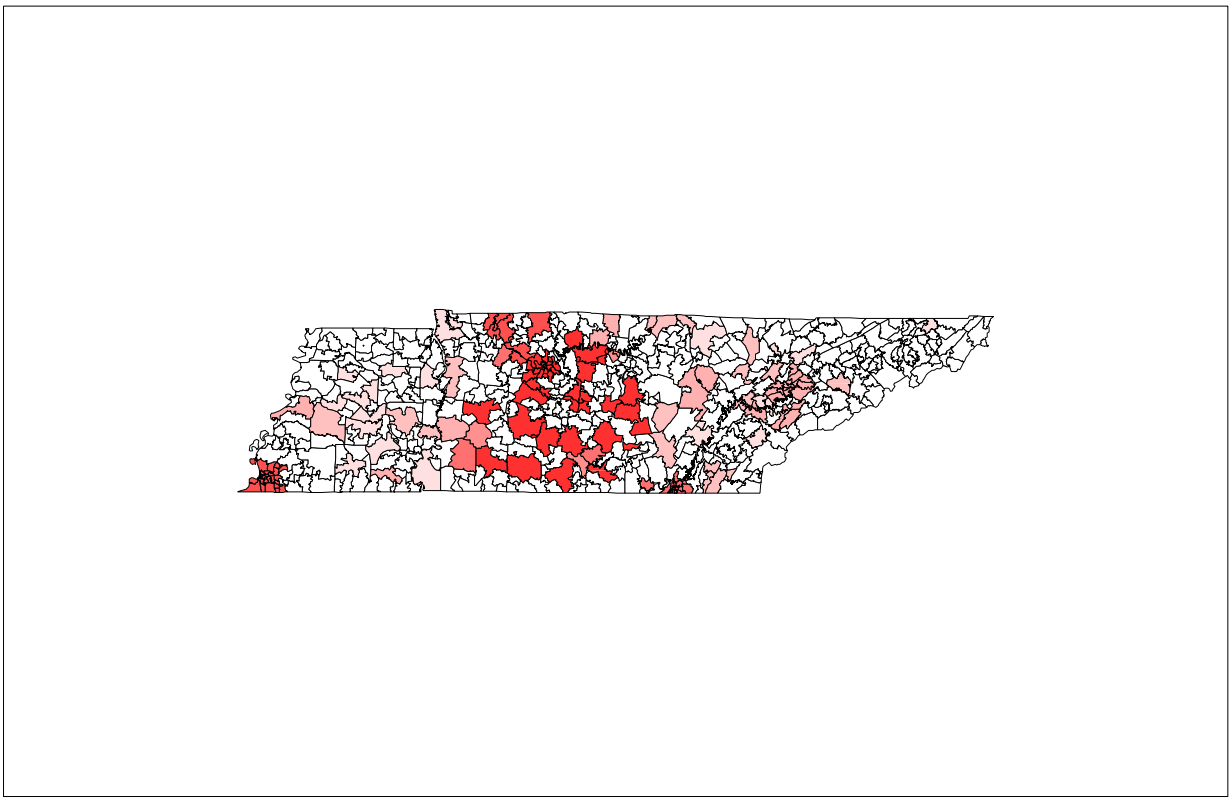
Map 1: Austin Peay State University



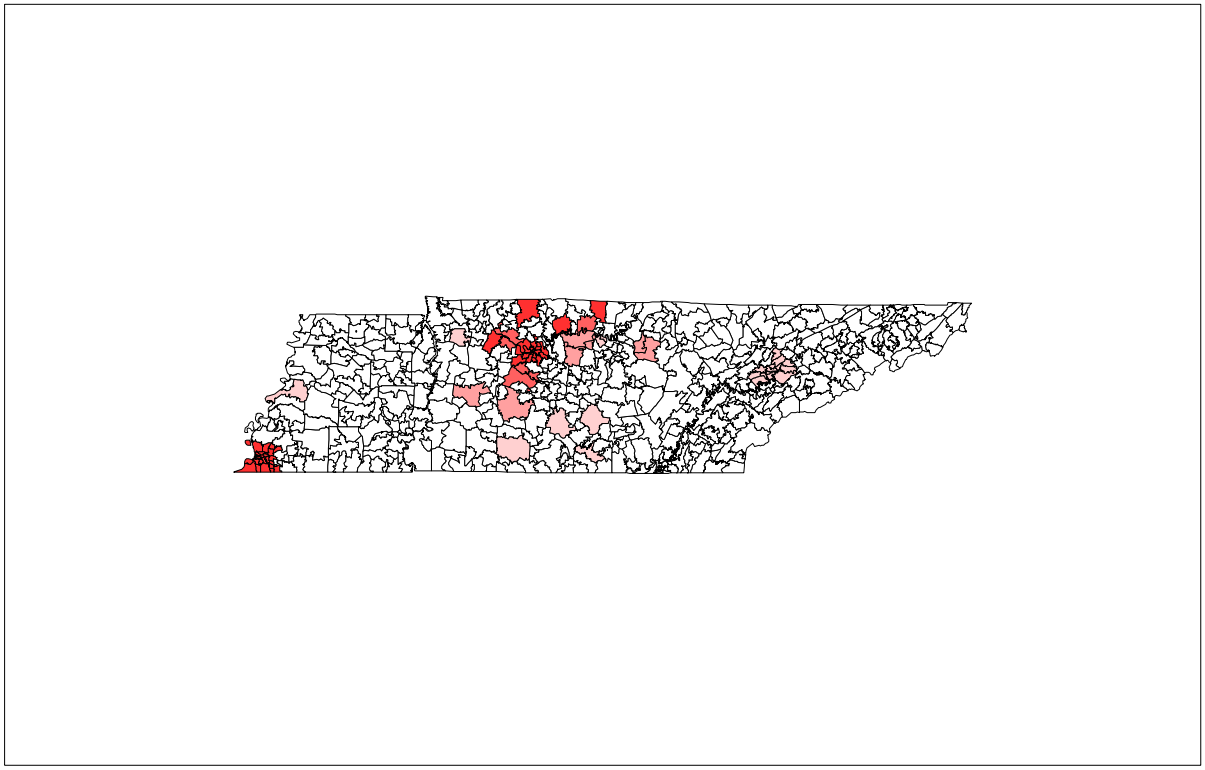
Map 2: East Tennessee State University



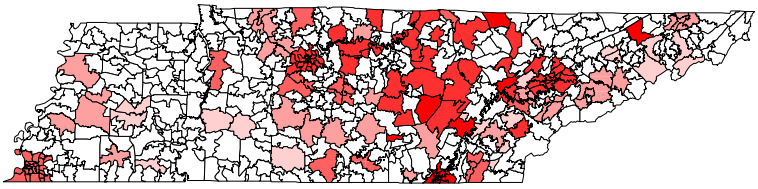
Map 3: Middle Tennessee State University



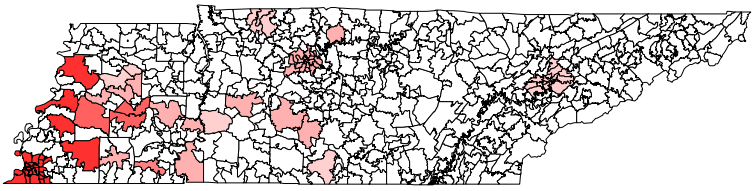
Map 4: Tennessee State University



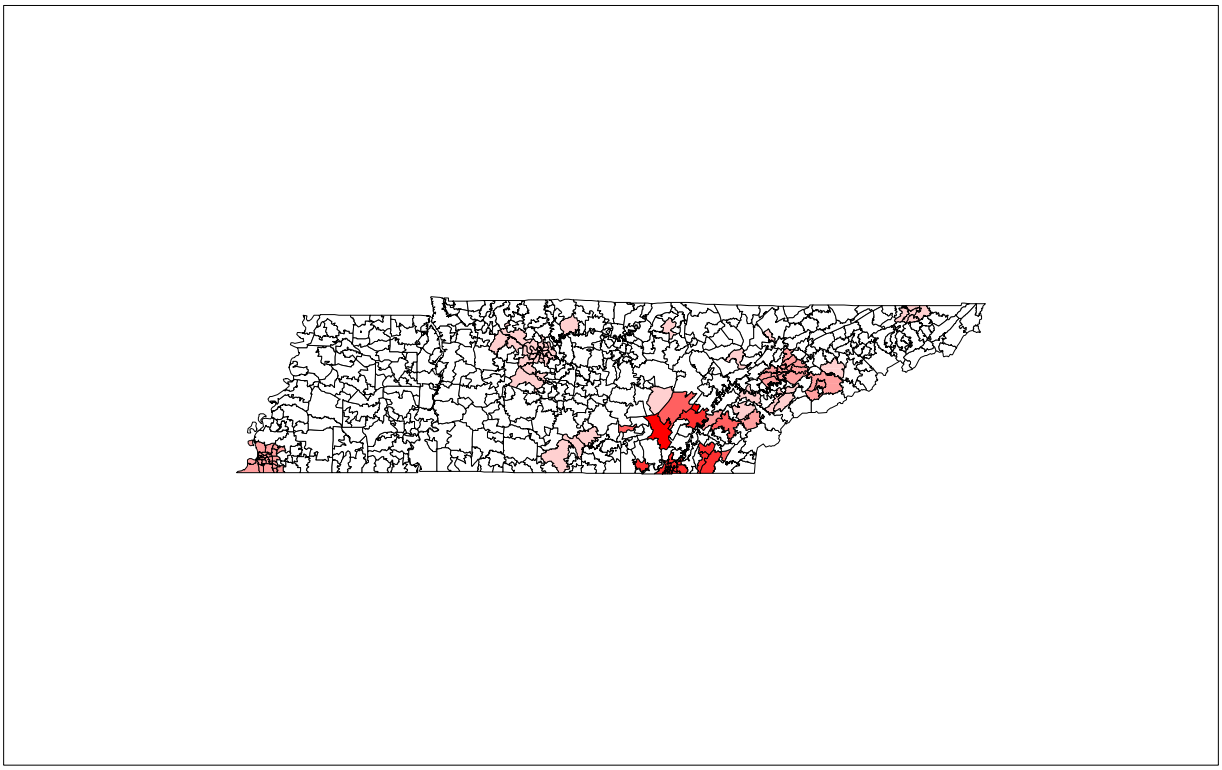
Map 5: Tennessee Technological University



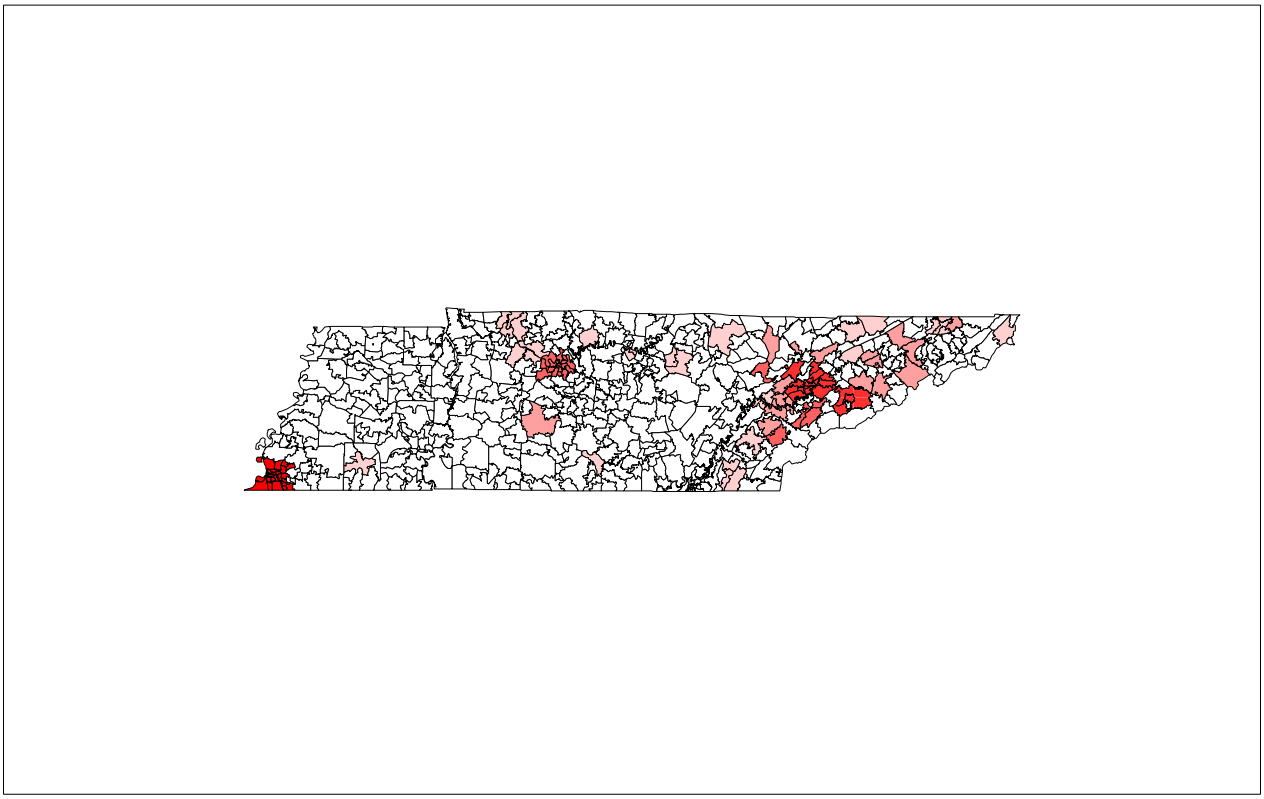
Map 6: University of Memphis



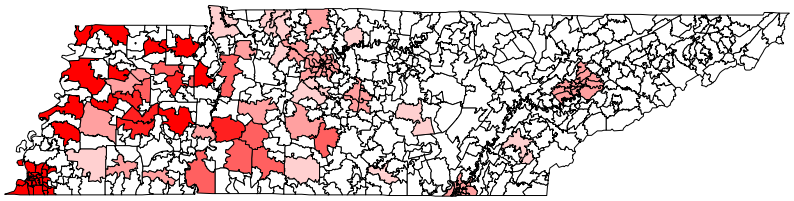
Map 7: University of Tennessee at Chattanooga



Map 8: University of Tennessee at Knoxville



Map 9: University of Tennessee at Martin



Supply and Demand

District Educator Supply and Demand

The factors that influence demand—enrollment and student to educator ratios, and the factors that influence supply---attrition, entrance, waivers and permits are analyzed in the following sections. Supply and demand is shown for position and by district. T*his analysis compares the projected 5 years with the most recent 5 historical years. This provides comparisons of the past 5 years with what is projected to occur in the next five years. It is a simple and direct way to create a standard by which to judge the projected changes.*

Projected Changes in Future Enrollments

Live births, which, in part, influence the number of kindergarten students and subsequently other grades, have shown a mild increase over the past 5 years, totaling 2 percent. The number grew greatly from 1988 to 1989 and since that point has hovered around 72,000 to 74,000. This portends mild increases in kindergarten students.

Table 28: Recent Live Births in Tennessee

Change 1988 to 1992	Change 1993 to 1997
2875	1535
4%	2%

Projected Enrollment Analysis for the State

Projected enrollments by grade groupings show that the rapid recent historical growth in kindergarten students should level off over the next five years, barring any great change in patterns of persons moving to or leaving the state, elementary grades should experience roughly the same degree of growth from 1998 to 2002, as it did from 1993 to 1997. There will be a marked increase in middle school students of roughly 18,000 over the next five years. This is compared with an increase of some 5200 from 1993 to 1997. Grades 7 and 8 increased 3 percent from 1993-1997, but are projected to increase 9 percent from 1998 to 2002. The increase in high school students will drop from about 7,400 from 1993 to 1997, to about 14,000 from 1998 to 2002.

Table 29: Historical and Projected Enrollments

	Year	K	1-4	5-6	7-8	9-12	Special Education	Total
Historical Years	**1993**	69,680	287,777	140,524	138,900	249,570	20524	906975
	1994	73,547	291,880	141,531	141,903	255,736	19076	923673
	1995	76,576	296,048	141,519	144,063	258,471	19723	936400
	1996	79,597	300,753	143,235	143,756	262,367	18509	948217
	1997	80,085	308,051	145,781	143,579	266,990	18159	962645
Forecast Years	**1998**	79,822	318,664	145,732	146,545	271,612	19,213	981,583
	1999	79,027	326,079	148,279	150,096	274,918	19,550	997,957
	2000	79,631	329,270	154,562	150,199	279,969	19,863	1,013,507
	2001	79,994	331,801	159,590	153,075	282,682	20,143	1,027,292
	2002	80,921	331,827	164,066	159,627	285,590	20,454	1,042,493
Change: 1993 to 1997		15%	7%	4%	3%	7%	-12%	6%
Change in Number		10,405	20,274	5,257	4,679	17,420	-2,365	55,670
Change: 1997 to 2002		1%	4%	13%	9%	5%	6%	6%
Change in Number		1,099	13,163	18,334	13,082	13,978	1,241	60,910

Projected Enrollment for Districts

Fewer districts had an increase in kindergarten students from 1993-97 (87 percent) than projected for 1998-02 (47 percent). However, far more districts have increases in middle school enrollments--57 percent of districts with increases from 1993-97 versus 86 percent of districts with projected increases from 1998-02. The number of districts with increased enrollments for high school remains largely the same from 1993-97 as in 1998-02.

Table 30: Percentage of Districts by Direction of Change in Enrollments

	1992-93 to 1996-97				1997-98 to 2001-2002		
	Decrease in Enrollments From '93 to '97	Same Enrollments from '93 to '97	Increase In Enrollments from '93 to '97		*Projected* Decrease in Enrollments from '98 to '02	*Projected* Same Enrollments From '98 to '02	*Projected* Increase In Enrollments from '98 to '02
Kindergarten	12%	1%	87%		53%		47%
Elementary	29%	1%	70%		26%		74%
Middle School	43%		57%		14%	1%	86%
Junior High School	44%	1%	55%		25%		75%
High School	35%		65%		33%		67%
Ungraded	58%	1%	40%		12%	17%	72%
Total	28%		72%		17%		83%

The enrollment projections that are used to estimate supply and demand are based on districts meeting the EIA student to teacher ratios by 2002. There is an incremental change, each year, to bring the district workforce in line with the EIA standard. This method produces an increase in educators in 1998 as districts start to implement changes to come up to the EIA standards. Since there is no defined standard for special education, the student to teacher ratio for the last historical year is held constant through the projection period.

Historical Enrollment Analysis at the State Level

Linking Supply and Demand

The supply of educators is influenced by rates of attrition, numbers of graduates in particular subject areas, numbers in the reserve pool (licensed but not employed in the state), and the number of licensure waivers and permits issued. Demand is influenced by the number of live births in previous years, the level of current enrollments, curriculum, and mandated student to teacher ratios. This section examines the relationship of supply to demand by positions and district.

First, it is important to look at historical changes in number of educators and students. The rate of growth of total enrollments, from year to year, hovered at 1.5 percent per year for the last 5 years. The change in the total number of educators has alternated with years of increase greater than 2 percent, followed by period of growth less than 1 percent. Teacher growth was erratic moving between less than 1 percent to 2.8%. Overall the student to educator ratio has been around 16.4 for the past 5 years, while the student to teacher ratio is at about 19. Note that educators include teachers plus administrators and staff.

Table 31: Rates of Growth for Enrollments and Educators

Year	Total Enrollments	Rate of Change	Total Educators	Rate of Change	Total Teachers	Rate of Change	Student to Educator Ratio	Student to Teacher Ratio
1992-93	906,975	1.50%	54,903	1.90%	47,217	1.5%	16.5	19.2
1993-94	923,673	1.80%	56,424	2.80%	48,548	2.8%	16.4	19.0
1994-95	936,400	1.40%	56,750	0.60%	48,758	0.4%	16.5	19.2
1995-96	948,217	1.30%	58,130	2.40%	49,954	2.5%	16.3	19.0
1996-97	962,645	1.50%	58,523	0.70%	50,248	0.6%	16.4	19.2

District Change

To examine the relationship of enrollment growth to workforce at the district level, the following table compares enrollment change (E) with the change in the educator workforce (W). The ten districts showing the greatest disparity between enrollment growth and workforce growth are shown. The larger ratio shows that enrollments are growing faster than the growth of the workforce. This indicator suggests possible problems of supply keeping pace with demand. As can be seen, the analysis of supply and demand conditions by district shows considerable diversity among districts in facing changing enrollments and their capability to obtain adequate supply to meet the demand of those changing enrollments.

Table 32: Districts ranked by Enrollment Growth related to Workforce Growth, 1993 to 1997

	1997 Enrollment	1997 Educators		Enrollment Growth	Workforce Growth	Ratio E/W
TOP 10						
UNION	3104	114		19%	-14%	1.37
KINGSPORT	7004	431		11%	-5%	1.17
CHATTANOOGA CITY	23724	1306		4%	-1	1.16
WILLIAMSON	18008	1017		42%	25%	1.14
MEMPHIS	120048	6495		7%	-2%	1.09
ETOWAH	382	27		13%	4%	1.09
TRENTON	1547	99		16%	6%	1.09
SEQUATCHIE	1903	118		12%	3%	1.09
JOHNSON CITY	6863	183		8%	1%	1.08
ALCOA	1494	102		0%	-7%	1.07
WHITE	4098	236		12%	4%	1.07
State	962630	58503		4.6%	7.6%	0.97
BOTTOM 10						
CLINTON	963	81		-18%	1%	0.81
VAN BUREN	824	66		-5%	16%	0.82
UNION CITY	1581	175		-9%	9%	0.83
SCOTT	3123	225		-7%	12%	0.83
SOUTH CARROLL	402	30		-5%	15%	0.83
COVINGTON	1099	71		-9%	4%	0.87
LENOIR CITY	2019	122		1%	15%	0.87
HUMBOLDT	2271	164		-8%	6%	0.87
MURFREESBORO	5178	366		0%	15%	0.87
MCNAIRY	4274	297		-1%	13%	0.88

The ratio E/W, for Union, for example was 1.19/0.86=1.37, or 19 percent enrollment growth (1.19) divided by –14% decline in educators (.86).

Student-Teacher Ratios and Meeting EIA Standards

Examining Historical Student to Teacher Ratios

The following examines changes in the student to teacher ratios as calculated from the Tennessee Preliminary Reports (which provide information on the number of students per class). In general, the ratios became smaller (that is better) from 1995-96 to 1996-97. This suggests that certain districts can find the supply to meet the demands set by the EIA standards. The only area that seems to be facing a sustained difficulty in reaching the standard is the kindergarten grade.

Improvements from 1995-96 have been made in all areas in 1996-97 (Compare the "better" columns)

Table 33: Percent of Districts Meeting EIA Student-Teacher Ratio Standards
1995-96 School Year

Standard	Category	Better	Equal	Worse
20	Kindergarten	37%	19%	44%
20	Elementary	81%	8%	11%
25	Middle School	72%	15%	13%
30	Junior HS	98%	1%	1%
30	HS Business	98%	1%	1%
30	HS Language Arts	98%	1%	1%
30	HS Social Studies	94%	3%	3%
30	HS Foreign Language	95%	2%	3%
30	HS Mathematics	100%	0%	0%
30	HS Science	98%	2%	0%
20	HS Vocational	65%	13%	22%

Table 34: Percent of Districts Meeting EIA Student-Teacher Ratio Standards
1996-97 School Year

Standard	Category	Better	Equal	Worse
20	Kindergarten	57%	2%	41%
20	Elementary	83%	0%	17%
25	Middle School	86%	0%	14%
30	Junior HS	100%	0%	0%
30	HS Business	99%	0%	1%
30	HS Language Arts	100%	0%	0%
30	HS Social Studies	96%	1%	3%
30	HS Foreign Language	98%	0%	2%
30	HS Mathematics	100%	0%	0%
30	HS Science	99%	0%	1%
20	HS Vocational	81%	0%	19%

Waivers and Permits

Another indicator of the relationship of supply to demand is the number of waivers and permits issued. Table 35 shows the number of waivers and permits applied for by district. 13 districts account for more than 50 percent of all **waivers** issued. 6 districts account for more than 50 percent of **permits** issued. Out of the 139 districts, 112 requested waivers. Of that 112, 71 asked for 5 or less waivers---26 asked for only a single waiver.

Table 35: Highest ten and lowest districts percent permits and waivers in 1996-97

District	Total Workforce in 1997	Permits	Waivers	Permits + Waivers	Waivers as % of Workforce	Permits as % of Workforce	% Permits and Waivers of Workforce
TOP 10							
RICHARD CITY	22	0	10	10	45%	0%	45%
DECATUR	143	2	17	19	12%	1%	13%
HARDEMAN	333	29	15	44	5%	9%	13%
MACON	231	4	18	22	8%	2%	10%
GRUNDY	195	8	8	16	4%	4%	8%
HICKMAN	235	11	8	19	3%	5%	8%
SEQUATCHIE	118	5	5	10	4%	4%	8%
ALAMO	41	2	1	3	2%	5%	7%
FAYETTE	270	11	8	19	3%	4%	7%
LAUDERDALE	318	4	17	21	5%	1%	7%
BOTTOM 10							
ALCOA	102	0	0	0	0%	0%	0%
ATHENS	124	0	0	0	0%	0%	0%
BELLS	26	0	0	0	0%	0%	0%
BRISTOL	278	0	0	0	0%	0%	0%
CARROLL	20	0	0	0	0%	0%	0%
CLINTON	81	0	0	0	0%	0%	0%
ETOWAH	27	0	0	0	0%	0%	0%
GIBSON SPEC.	150	0	0	0	0%	0%	0%
JEFFERSON	386	0	0	0	0%	0%	0%
MARYVILLE	276	0	0	0	0%	0%	0%
MORGAN	241	0	0	0	0%	0%	0%
NEWPORT	52	0	0	0	0%	0%	0%
ROANE	428	0	0	0	0%	0%	0%
ROGERSVILLE	45	0	0	0	0%	0%	0%
SOUTH CARROLL	30	0	0	0	0%	0%	0%
SWEETWATER	83	0	0	0	0%	0%	0%

Table 36 shows the licensure area with the sum of waivers and permits greater than 50. Special education leads the list, followed by elementary grades, mathematics, science, and social studies. It should be noted that a substantial number of the elementary waivers and permits were from urban districts in the state.

Table 36: Total of Waivers and Permits by Area

Area	Waivers	Permits	Total
Special Education	133	91	224
Elementary Grades	24	133	157
Mathematics	17	63	80
Science	16	49	65
Social Studies	34	29	63
Resource	40	20	60
Foreign Language	16	38	54
ESL	45	8	53

Reserve Pool Analysis

The reserve pool is composed of those educators who have credentials to teach, but are currently not hired in the Tennessee public education system. Previous studies have shown that 3 years after initial certification much smaller numbers are likely to be employed in education the state.

The current reserve pool is estimated by taking all persons with valid licenses with expiration dates after 1997, removing those with over 25 years experience, those who died, and those currently in the workforce. There are over 75,000 endorsements shared among some 39,300 individuals or slightly less than 2 endorsements per person. Table 37 shows the large number of endorsements in almost every broad category, except ESL (English as a second language). (Details on these categories are shown in appendix 3.)

Table 37: Certification Pool by Broad Areas

Certification Area	Number of Endorsements
Elementary	20787
Social Sciences	9890
Vocational	6357
Science	5727
Special Education	5330
Business	4393
English	3770
Health	3458
Middle School	3050
Art & Music	2797
Mathematics	1933
Administration	1914
Staff	1844
Foreign Language	1467
Physical Ed	1110
Miscellaneous	570
Reading Specialist	513
Communication	484
ESL	91
Total	75485

The Influence of the Aging Workforce on Educator Supply

A current concern is the aging of the workforce. Given that a large portion of the workforce is composed of "baby boomers" and they are aging---will the educator workforce suffer large losses in the years ahead? To attempt to answer that question a simulation of the workforce aging, and its impact on attrition was conducted.

A simulation was estimated to see how the aging of the workforce will influence the number of educators over time. "Aging" is tracked with the experience level, as it is a more reliable source of data in Tennessee than age.

The assumptions are:

1. 1995-96 attrition rates by experience groups remain the same (not number, but rates), and
2. the entry number, by experience as shown in the historical date from 1996-97, will remain the same to replace exiting educators.
3. enrollments are held at the 1996-97 level---to see if the influence of aging alone will cause problems.

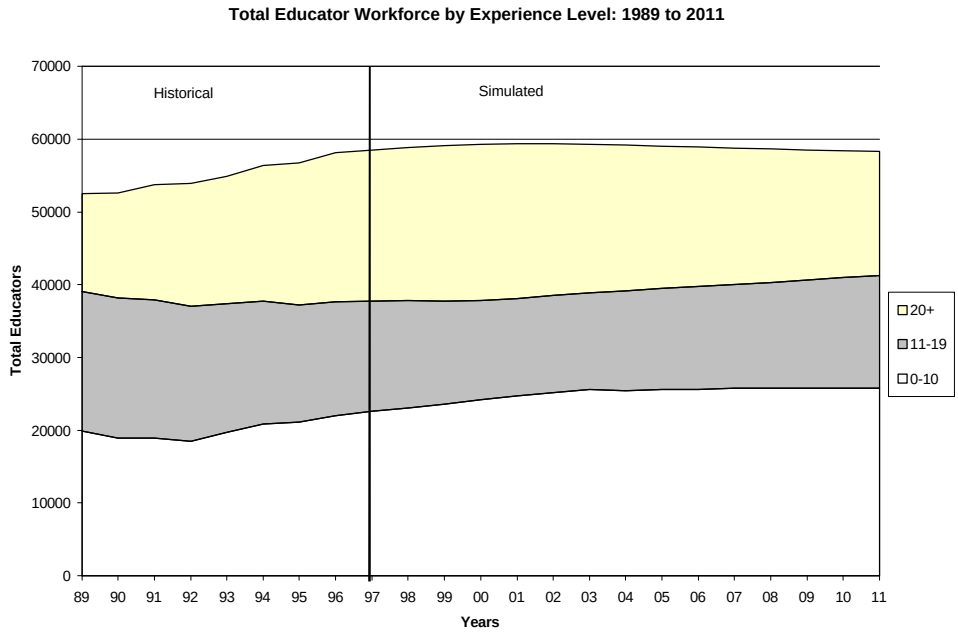
Figure 2 shows that in the historical period, there is an increase in educators for experience levels of both 20+ and 0-10 years. In the simulated period both of those groups grow, squeezing the 11-19 years experience group as the baby boomers make their way into the 20 years group. Note that the 0-10 years group replaces the shrinking of the 11-19 years group.

However, given these assumptions the workforce actually grows to 2003, and then we see a mild decline. In other words, given assumptions 1-3 above no "dramatic" change is observed over the period of concern.

It is important to observe that the workforce does not "grow" in the projected periods quite like it did over the historical period. The number in the +20 years group does not grow, it stabilizes and then gradually shrinks. The influence of attrition on the bulge of baby boomers is shown in a slowing of growth of the total workforce---rates of growth in the projected period are slower than historical rates.

Such slower growth in the face of increasing enrollments suggest that more hires will be required than in the past to sustain the student to teacher ratios. Tennessee will have to draw more deeply on its reserve pool, increase the numbers of new graduates who are hired, and reduce attrition in new and late career educators to make this happen.

Figure 4: Simulation of Aging Workforce



Projections of Educator Demand

The projections of supply and demand at the districts levels examine how current historical trends in enrollments, retention, and hiring will require districts to increase or decrease the number of teachers by particular grade levels over the next five years. The initial increase shown in the initial projection year 1998 is due to assuming that districts will implement the policies to reach the student to teacher ratios mandated by the state.

Table 38: Tennessee Total Educators by Year

Year	Total Educators	Percent Change	Change in Number
Historical			
1993	54903	2%	1,001
1994	56424	3%	1,521
1995	56750	1%	326
1996	58130	2%	1,380
1997	58523	1%	393
Projection			
1998	60045	3%	1522
1999	61263	2%	1218
2000	62408	2%	1145
2001	63476	2%	1068
2002	64600	2%	1124

Projection of the Number of Educator Positions Needed

Projections of demand for educators are shown in table 39. The number of teaching positions is projected to increase in all categories. However, there are differences in the rate of change by category. Comparing the changes for the number of educators from 1992-93 to 1996-97 to the changes in number of educators from 1998-02 we find the following.

- The increase in the number of kindergarten teachers needed *drops* from 522 additional teachers needed from 1993 to 1997 to 387 additional teachers needed from 1998 to 2002.
- The number of elementary educators remains largely *stable*: 862 additional teachers needed to 948 additional teachers needed.
- The number of middle school educators needed *increases* from 381 additional teachers needed to 1134 additional teachers needed.
- Junior high school teachers needed *declines* from 826 additional teachers needed to 572 additional teachers needed.
- High school educators *increase* from a drop of 3, to 642 additional teachers needed.
- Special education numbers show a slight *decline* from 443 additional teachers needed to 331 additional teachers needed given the assumption that historical student teacher ratios are adequate.
- Staff shows a slight *decline* in the number needed, 438 to 344 and administrators show a small increase from 151 to 163.

Table 39: Estimated Changes in the Number of Positions

Year	1993	1994	1995	1996	1997	*1998*	*1999*	*2000*	*2001*	*2002*
Kindergarten	3,221	3,382	3,442	3,650	3,743	*3,795*	*3,836*	*3,950*	*4,041*	*4,182*
Rate of Change in Educators	4%	5%	2%	6%	3%	*1%*	*1%*	*3%*	*2%*	*3%*
Enrolled	69,680	73,547	76,576	79,597	80,085	*79,822*	*79,027*	*79,631*	*79,994*	*80,921*
Rate of Change in Students	2%	6%	4%	4%	1%		*-1%*	*1%*		*1%*
Student to Educator Ratio	21.6	21.7	22.2	21.8	21.4	*21.0*	*20.6*	*20.2*	*19.8*	*19.3*
Change in Educators 93-97,98-02					522					*387*
Elementary (1-4)	16,611	16,918	16,856	17,182	17,473	*18,112*	*18,576*	*18,800*	*19,014*	*19,060*
Rate of Change in Educators	2%	2%		2%	2%	*4%*	*3%*	*1%*	*1%*	
Enrolled	287,777	291,880	296,048	300,753	308,051	*318,664*	*326,079*	*329,270*	*331,801*	*331,827*
Rate of Change in Students		1%	1%	2%	2%	*3%*	*2%*	*1%*	*1%*	
Student to Educator Ratio	17.3	17.3	17.6	17.5	17.6	*17.6*	*17.6*	*17.5*	*17.5*	*17.4*
Change in Educators 93-97,98-02					862					*948*
Middle School (5-6)	5,191	5,364	5,444	5,607	5,572	*5,652*	*5,836*	*6,173*	*6,477*	*6,786*
Rate of Change in Educators	4%	3%	1%	3%	-1%	*1%*	*3%*	*6%*	*5%*	*5%*
Enrolled	140,524	141,531	141,519	143,235	145,781	*145,732*	*148,279*	*154,562*	*159,590*	*164,066*
Rate of Change in Students	2%	1%		1%	2%		*2%*	*4%*	*3%*	*3%*
Student to Educator Ratio	27.1	26.4	26.0	25.5	26.2	*25.8*	*25.4*	*25.0*	*24.6*	*24.2*
Change in Educators 93-97,98-02					381					*1134*
Junior High School (7-8)	4,542	4,715	4,776	5,385	5,368	*5,493*	*5,634*	*5,661*	*5,789*	*6,065*
Rate of Change in Educators	1%	4%	1%	13%		*2%*	*3%*		*2%*	*5%*
Enrolled	138,900	141,903	144,063	143,756	143,579	*146,545*	*150,096*	*150,199*	*153,075*	*159,627*
Rate of Change in Students	2%	2%	2%			*2%*	*2%*		*2%*	*4%*
Student to Educator Ratio	30.6	30.1	30.2	26.7	26.7	*26.7*	*26.6*	*26.5*	*26.4*	*26.3*
Change in Educators 93-97,98-02					826					*572*
High School (9-12)	12,635	12,934	12,980	12,709	12,632	*12,837*	*12,992*	*13,214*	*13,345*	*13,479*
Rate of Change in Educators		2%		-2%	-1%	*2%*	*1%*	*2%*	*1%*	*1%*
Enrolled	249,570	255,736	258,471	262,367	266,990	*271,612*	*274,918*	*279,969*	*282,682*	*285,590*
Rate of Change in Students	2%	2%	1%	2%	2%	*2%*	*1%*	*2%*	*1%*	*1%*
Student to Educator Ratio	19.8	19.8	19.9	20.6	21.1	*21.2*	*21.2*	*21.2*	*21.2*	*21.2*
Change in Educators 93-97,98-02					-3					*642*

Table 39 Continued: Estimated Changes in the Number of Positions

Special Education	5,017	5,235	5,260	5,421	5,460	*5,724*	*5,823*	*5,914*	*5,998*	*6,089*
Rate of Change in Educators	1%	4%		3%	1%	*5%*	*2%*	*2%*	*1%*	*2%*
Enrolled	20,524	19,076	19,723	18,509	18,159	*19,213*	*19,550*	*19,863*	*20,143*	*20,454*
Rate of Change in Students	-2%	-7%	3%	-6%	-2%	*6%*	*2%*	*2%*	*1%*	*2%*
Student to Educator Ratio	4.1	3.6	3.7	3.4	3.3	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
Change in Educators 93-97,98-02					443					*365*

Staff	5,199	5,346	5,436	5,598	5,637	*5,744*	*5,835*	*5,923*	*6,002*	*6,088*
Rate of Change in Educators	6%	3%	2%	3%	1%	*2%*	*2%*	*2%*	*1%*	*1%*
Enrolled	906,975	923,673	936,400	948,217	962,645	*981,583*	*997,957*	*1,013,507*	*1,027,292*	*1,042,493*
Rate of Change in Students	2%	2%	1%	1%	2%	*2%*	*2%*	*2%*	*1%*	*1%*
Student to Educator Ratio	174.5	172.8	172.3	169.4	170.8	*170.9*	*171.0*	*171.1*	*171.2*	*171.2*
Change in Educators 93-97,98-02					438					*344*

Administrators	2,487	2,530	2,556	2,578	2,638	*2,688*	*2,731*	*2,773*	*2,810*	*2,850*
Rate of Change in Educators	1%	2%	1%	1%	2%	*2%*	*2%*	*2%*	*1%*	*1%*
Enrolled	906,975	923,673	936,400	948,217	962,645	*981,583*	*997,957*	*1,013,507*	*1,027,292*	*1,042,493*
Rate of Change in Students	2%	2%	1%	1%	2%	*2%*	*2%*	*2%*	*1%*	*1%*
Student to Educator Ratio	364.7	365.1	366.4	367.8	364.9	*365.2*	*365.4*	*365.5*	*365.6*	*365.7*
Change in Educators 93-97,98-02					151					*163*

Total	54,903	56,424	56,750	58,130	58,523	*60,045*	*61,263*	*62,408*	*63,476*	*64,600*
Rate of Change	2%	3%	1%	2%	1%	*3%*	*2%*	*2%*	*2%*	*2%*
Enrolled	906,975	923,673	936,400	948,217	962,645	*983,237*	*999,644*	*1,015,214*	*1,029,017*	*1,044,233*
Rate of Change	2%	2%	1%	1%	2%	*2%*	*2%*	*2%*	*1%*	*1%*
Student to Educator Ratio	16.5	16.4	16.5	16.3	16.4	*16.4*	*16.3*	*16.3*	*16.2*	*16.2*
Change 93-97,98-02					3620					*4555*

All Teachers	47,217	48,548	48,758	49,954	50,248	51,613	52,697	53,712	54,664	55,661
Rate of Change in Educators		3%	0%	2%	1%	3%	2%	2%	2%	2%
Enrolled	906,975	923,673	936,400	948,217	962,645	981,588	997,949	1,013,494	1,027,285	1,042,485
Rate of Change in Students		2%	1%	1%	2%	2%	2%	2%	1%	1%
Student to Educator Ratio	19	19	19	19	19	19	19	19	19	19
Change in Educators 93-97,98-02					3,031					4,048

District Analysis of Change in Educator Positions

Examining the projected number of positions among districts shows a diversity of results. Comparing changes in positions by district from 1993-97 (that is, are the number of positions in 1997 less than, the same, or more than the number of positions in 1993) to projected changes for 1998-2002 (that is, are the number of positions in 2002 less than, the same, or more than the number of positions in 1998) shows that *the greatest changes are observed in middle school*—historically 64 percent of districts increase while in the projection 86 percent of districts increase. In both the historical and projected periods a sizable majority of districts are showing increases in positions.

Table 40: Percentage of Districts by Direction of Change in Workforce

	1992-93 to 1996-97			1997-98 to 2001-2002		
	Decrease	Same	Increase	Decrease	Same	Increase
Kindergarten	9%	14%	77%	13%	20%	67%
Elementary	28%	4%	67%	20%	8%	72%
Middle School	20%	16%	**64%**	5%	9%	**86%**
Junior High School	29%	5%	66%	16%	14%	70%
High School	32%	9%	60%	30%	12%	58%
Special Education	22%	15%	63%	22%	21%	56%
Administrators	22%	29%	49%	4%	37%	59%
Staff	17%	9%	74%	11%	20%	70%
Total	14%	2%	84%	15%	3%	82%

Conclusions

Analysis of Supply and Demand Conditions

Tennessee will face some challenges in keeping the supply in balance with the demand for educators in order to meet its EIA standards for student to teacher ratios. As discussed, there are numerous factors influencing supply and demand: the change in enrollments, the aging of the workforce, the size of the reserve pool, and the number of licensure candidates produced by Tennessee IHEs. These conditions are measured by the degree to which standards for student to teacher ratio are met.

Grade Levels of Concern

The following table indicates how demand in the past 5 years historical period (1993-1997) compares to projections over the next five years (1998-2002). This provides a means for comparing what is known (the past 5 years) with that is projected for the future.

Table 41: Analysis of Demand by Grade Level

	Historical Change in Number of Positions 1993-1997	**Projected Change in the Number of Positions 1998-2002**	*Difference in the growth in positions: historical and projected*	**Commentary** *The change in historical positions is based on changes in the total number employed from 1993 compared to the number employed in 1997. Given mandated student to educator ratios, or historical ones that are lower (better) the projected change in positions is then based on changes in enrollment, historical attrition rates based on age and subject area.*
Kindergarten	522 positions added	387 positions added	Growth is slower—135 less positions are added	Less demand for positions is projected for the future, that has been seen in the recent past due to falling live births. The standard for class size is 20.
Elementary	862 positions added	948 positions added	Growth is greater—86 more positions are added	An increase in the growth in positions is seen for the years ahead, relative to historical rates of change as the former increase in births makes its way through and districts above the EIA class size standard are brought into line. The standard for class size is 20.
Middle School	381 positions added	1134 positions added	Growth is greater—753 more positions are added	Big jump in the future due to large elementary cohorts flowing through and continued work to bring districts in line with EIA standards (14% are off EIA standard in 1996-97). The projection gradually brings the ratio in line. The standard for class size is 25.
Jr. High School	826 positions added	572 positions added	Growth is slower—254 less positions are added	Though enrollments increase, the number of positions demanded is less due to so many districts being at or better than the EIA standards in the historical period. The standard for class size is 30.
High School	3 positions *removed*	642 positions added	Growth is greater—645 more positions are added	Historically higher jr. high school cohorts move through increasing demand, and there is still some work to be done to bring districts in line. The standard for class size is 30.

Table 41 Continued: Analysis of Demand by Grade Level

	Historical Change in Number of Positions 1993-1997	**Projected Change in the Number of Positions 1998-2002**	*Difference in the growth in positions: historical and projected*	**Commentary** *The change in historical positions is based on changes in the total number employed from 1993 compared to the number employed in 1997. Given mandated student to educator ratios, or historical ones that are lower (better) the projected change in positions is then based on changes in enrollment, historical attrition rates based on age and subject area.*
Special Ed	443 positions added	365 positions added	Growth is slower—78 less positions are added	There is no standard, so the historical rate of special education teachers to enrollment was used..
Staff	438	344 positions added	Growth is slower—94 less positions are added	There is no standard, so the historical rate of staff to enrollment was used.
Administrators	151 positions added	163 positions added	Growth is greater—12 more positions are added	Continued need due to overall enrollment increase. There is no standard, so the historical rate of administrators to enrollment was used.

All areas show an increase, given the projected change in enrollments, with the greatest increases in the number of new positions being in middle school and high school.

Subject Areas of Concern

After examining changes in enrollments and the size of the reserve pool by subject, the following concerns emerge:

Special Education: particularly the areas of visually impaired and multiple disabilities. These areas have large number of permits and waivers, particular areas have low numbers in the reserve pool.

Elementary: There are potential shortages in selected geographic areas. There has been a large number of persons trained to teach elementary grades---larger than any other grade group. A high percentage (68%) of elementary trained graduates from Tennessee college and universities are employed in the state. There is a large number of educators in the reserve pool trained to teach elementary grades. Yet, there are a large number of waivers and permits for elementary (outdone only by special education). Urban districts have a very different experience in filling positions than non-urban districts with regard to elementary teachers. A high percentage of waivers are in urban districts. A certain extent of the concern with the supply of elementary teachers should be mitigated in the future with lower rates of growth in elementary students.

Foreign Languages: There are a large number of permits and waivers, and the reserve pool estimates show low numbers for all languages except Spanish and French.

ESL: Large number of waivers and permits, low numbers in the reserve pool.

Math and Science: Large number of permits, with a low number of graduates and licensures with persons having majors in areas related to math and science.

Social Studies: Large number of waivers and permits, a small reserve pool.

Again, these conditions will be exacerbated when such subjects are in middle schools (given the large projected increase in enrollments) and Junior high school (given a somewhat larger increases in growth in enrollments from historical levels).

However, all of these concerns should be kept in perspective. Of the more than 58,000 educators in the system in 1997, there were 563 waivers and 668 permits or less than 1% each, or about 2% altogether. That is 98 percent of the positions are filled with endorsed educators.

Districts of Concern

Supply and demand conditions differ over the state of Tennessee. It does appear that large, urban districts such as Memphis City, Davidson, Sumner, and Chattanooga are having trouble filling positions, as they collectively account for more than 50% of permits and waivers. These urban districts account for why elementary, usually in great supply---and indeed there appears to be ample teachers in the reserve pool---are showing an under supply as witnessed in the number of waivers and permits. This emphasizes how working conditions strongly influence the supply to particular districts.

Conclusion

BOTTOM LINE IN TERMS OF SUPPLY AND DEMAND

- The supply of teachers is quite regional within the state linked closely to the geographical location of the institute of higher education.

- From 1993 to 1997, 36 percent of those who received first licensure for teaching, for all degree and non-degree levels, entered from private institutions of higher education and about 50 percent entered from public institutions of higher education.

- Barring any change in migration patterns, the growth in demand for positions in kindergarten will drop from its recent historical levels.

- Growth in enrollments will occur at all grade levels with the greatest growth occurring in middle school grades. All subject areas in those grades are vulnerable to supply shortages.

- Subject areas of special education (in particular partial seeing, blind, vision, visually impaired), ESL, math, science, foreign languages are a concern throughout the state.

- The areas of elementary and social studies are also of concern in urban areas.

Appendix 1: State of Tennessee: Position Code to Tennessee Position Crosswalk

Code	Position Description	Tennessee Position Code	Tennessee Position Name
	ADMINISTRATORS		
110	Superintendents	10	Superintendent
115	Assistant Superintendents	11	Asst. Superintendent
121	Elementary Principals	03	Principal (Elem.)
123	Secondary Principals	04	Principal (Sec)
124	Elem. & Sec. Principals	05	Principal (Elem. & Sec)
126	Asst. Elem. Principals	06	Asst. Principal (Elem.)
128	Asst. Sec. Principals	07	Asst. Principal (Sec)
129	Asst. Elem. & Sec. Principals	08	Asst. Principal (Elem. & Sec)
190	Other Administrative	74	Spec Ed Principal
		19	Principal & Superintendent
		63	Vocational Principal
	PROFESSIONAL STAFF		
210	Guidance Counselors	40	Guidance Counselor (Elem.)
		41	Guidance Counselor (Sec)
		42	Guidance Counselor (Elem. & Sec)
220	Librarians	28	Librarian (Elem. & Sec)
		31	Librarian (Elem.)
		32	Librarian (Sec)
280	Supervisors	16	Supv of Instruction (Sec)
		17	Supv of Instruction (Elem.)
		20	Supv of Inst. (Elem. & Sec)
		21	Materials Supervisor
		23	School Food Service Supervisor
		24	Special Education Supervisor
		75	Spec Ed Supervisor
		25	Vocational Supervisor
		62	Vocational Supervisor
		92	Chapter 1 Supervisor
290	Other Professional Staff	72	Spec Ed Related Ser, Prof. Pers
		73	Spec Ed School Psychologist
		29	Other System Wide (NCL)
		30	Other System Wide (CL)
		18	Attendance Teacher
		22	School Psychologist
		26	School Social Worker
		76	Speech/Hearing Specialist
		77	Audiologist
		33	Assessment Personnel
		34	Assessment Personnel

(Continued)

State of Tennessee
Position Code to Tennessee Position Crosswalk
(Continued)

Code	Position Description	Tennessee Position Code	Tennessee Position Name
	TEACHERS		
310	Special Education	46	Learning Disabilities
		47	SMR
		50	Home Instruction
		51	Hospital Instruction
		52	Multiple Disabilities
		53	Speech & Hearing
		54	Severe Speech & Hearing
		55	Severe Hard of Hearing
		56	Visually Handicapped
		57	EMR
		58	Experimental Spec Ed
		59	Emotionally Disturbed
		68	Spec Ed Teacher (Elem.)
		69	Spec Ed Teacher (Sec)
		70	Spec Ed Teacher (OPTS 7,8,9)
		71	Home/Hospital Instruction
400	Early Childhood Education	79	Pre-K Teacher
500	Kindergarten Teachers	80	Kindergarten Teacher
		00	Kindergarten
600	Elementary Teachers	01	Elementary Teacher
		27	Music Teacher (Elem.)
		36	Art Teacher (Elem.)
		37	Phys Ed Teacher (Elem.)
		81	Grade 1 Teacher
		82	Grade 2 Teacher
		83	Grade 3 Teacher
		84	Grade 4 Teacher
		90	Chapter 1 Teacher (Elem.)
		64	Vocational Teacher (Elem.)
700	Middle School Teachers	85	Grade 5 Teacher
		86	Grade 6 Teacher
800	Jr. High School Teachers	87	Grade 7 Teacher
		88	Grade 8 Teacher
900	Total High School Teachers	02	High School Teacher
		89	Grade 9-12 Teacher
		91	Chapter 1 Teacher (Sec)
980	High School - Vocational Ed.	60	Vocational Teacher
		61	Vocational Teacher (TSC)
999	High School - Other Teacher	99	Unknown

State of Tennessee
Position Code to Tennessee Position Crosswalk
(Continued)

The High School grouping (900 series above) are then split into the categories shown below using the assignment data from the preliminary report.

Code	Position Description
905	High School - Business
915	High School - Language Arts
930	High School - Social Studies
940	High School - Foreign Languages
960	High School - Mathematics
970	High School - Science

Appendix 2: Group Categories for Majors, Public colleges and universities

EARLY CHILDHOOD AND ELEMENTARY EDUCATION	**FINE ARTS**	**GENERAL**
Elementary Teacher Education	Art Teacher Education	Curriculum & Instruction
Ethnic & Cultural Studies	Music Teacher Education	General Education
Liberal Arts & Sciences	Visual & Performing Arts	Non Degree, No-Major
Multi/Interdisciplinary Studies		Teacher Ed Multiple Levels
Pre-Elem/Ec/Kindergn Tchr Ed	**HEALTH AND PHYSICAL EDUCATION**	
Reading Teacher Education	Health & Phys. Ed.	**OTHER PROFESSIONAL STAFF**
	Health Teacher Education	Coll/Postsec Stud Couns Svcs
SECONDARY		Counselor Ed Couns/Guid Svcs
Biology	**VOCATIONAL EDUCATION**	Educ Admin & Supervis Gen
Biology Teacher Education	Agri Business & Mgmt	Educational Psychology
Chemistry Teacher Education	Agricult Teacher Ed (Voc)	Health Professions
English Language & Lit.	Agricult/Agri Sciences	Higher Education Admin
English Teacher Education	Architectural Eng Tech/Tech	Psychology
Foreign Language Teacher Ed	Business	Public Administration
Foreign Languages & Lit	Business Teacher Ed (Voc)	
French Language Teacher Ed	Engineering	
History Teacher Education	Home Ec Teacher Ed (Voc)	
Mathematics	Home Economics General	
Mathematics Teacher Ed	Marketing	
Physical Sciences	Marketing Oper Tchr Ed (Voc)	
Science Teacher Ed General	Tchr Ed Acad/Voc Pgms Oth	
Secondary Teacher Education	Tech Tchr Ed/Ind Art Tchr Ed	
Social Sciences	Technical Teacher Ed (Voc)	
Social Studies Teacher Ed		
Spanish Language Teacher Ed	**SPECIAL EDUCATION**	
	Special Education General	

Appendix 2: Group Categories for Majors, Private colleges and universities

EARLY CHILDHOOD AND ELEMENTARY EDUCATION	SECONDARY Continued	VOCATIONAL EDUCATION
	History, General	Agricult Teacher Ed (Voc)
Education, General	Humanities/Humanistic Studs	Business Admin & Mgmt, Gen
Elementary Teacher Education	Lib Arts, Sci/Lib Studies	Business Teacher Ed (Voc)
Multi/Interdisc Studs, Other	Mathematics	Business, General
Pre-Elem/Ec/Kindergn Tchr Ed	Mathematics Teacher Ed	Business/Managerial Economic
Reading Teacher Education	Peace & Conflict Studies	Conserv & Renew Nat Res, Oth
SECONDARY	Phys Ed Teaching & Coaching	Home Ec Teacher Ed (Voc)
	Physics Teacher Education	Mass Communications
American Studs/Civilization	Physics, General	**SPECIAL EDUCATION**
Applied Mathematics, General	Political Science, General	Special Education, General
Biological & Physical Science	Science Teacher Ed, General	**GENERAL**
Biology Teacher Education	Secondary Teacher Education	Curriculum & Instruction
Biology, General	Social Sci & History, Other	General Studies
Chemistry Teacher Education	Social Sciences, General	Jhs/Intermed/Mid Sch Tchr Ed
Chemistry, General	Social Studies Teacher Ed	Miscellaneous
Classics/Classical Lang/Lit	Sociology	No Major
Communications, General	Spanish Language/Literature	Teacher Ed, Multiple Levels
Computer & Info Science, Gen	**FINE ARTS**	**OTHER PROFESSIONAL STAFF**
Earth & Planetary Sciences	Art, General	Admin Asst/Sec Sci, Gen
Economics, General	Fine/Studio Arts	Child Care/Guide Wkr/Mgr Gen
English Language/Lit, Gen	Music Teacher Education	Child Growth/Care/Devel Stds
English Teacher Education	Music, General	Cognitive Psych & Psycholing
Foreign Language Teacher Ed	Music-General Performance	Counselor Ed Couns/Guid Svcs
Foreign Languages & Lit Gen	Visual & Performing Arts	Educ Admin & Supervis, Gen
French Language Teacher Ed	Health & Physical Ed, Gen	Educ/Instruc Media Design
French Language/Literature	**HEALTH AND PHYSICAL EDUCATION**	Indiv/Fam Develop Studs Gen
General Teacher Ed, Other	Health Sys/Health Svcs Admin	Psychology, General
German Language/Literature	Health Teacher Education	Speech Teacher Education
History Teacher Education		Speech-Lang Path & Audiology
		MISCELLANEOUS
		Theology/Theological Studies
		Bible/Biblical Studies
		Religion/Religious Studies
		Religious Education

Appendix 3: Detail of the Reserve Pool—Kind of Endorsements by Area

Admin Supv K-8
Admin-Superintendent
Admin-Principal 7-12
Admin-Principal K-8
Admin-Supv of Attendance
Admin-Supv of Instr K-8 Init.
Admin-Food Service Supv
Admin-Supv Inst 7-12 Adv.
Admin-Supv Inst K-8 Adv.
Admin Coop Coordinator
Admin-Voc Ed. Dir/Admin
Admin-Supv. Of Material
Total Administration

Art & Music-School Music K-12
Art & Music-Art K-12
Art & Music-Instr Music K-12
Art & Music-Voc/Gen Music K-12
Art & Music-Instr Music K-12
Art & Music-Visual Arts K-12
Art & Music-Crafts/Are Apprec.
Art & Music-Vocal/General Music
Art & Music-Instrumental Music
Art & Music-Theatre K-12
Total Art & Music

Business-General Business
Business English
Business Machines
Business-Bookkeepping
Business Arithmetic
Business Law
Business- Misc
Business-Consumer Education
Business-Marketing Education
Business-Basic Business
Business-Accounting
Total Business

Comm.-Speech
Comm.-Speech Comm. 7-12
Total Communication

Science-Biology
Science-General Science
Science-Chemistry
Science-Physics
Science-Earth & Space Science
Science-Aeronautics
Total Science

Social Science-History
Social Science-Sociology
Social Science-Government
Social Science-Economics
Social Science-Geography
Social Sciences-Psychology
Social Science-History 7-12
Social Science-Government 7-12
Social Science-Social Studies
Social Science-Geography 7-12
Social Sciences-Psychology 7-12
Social Science-Sociology 7-12
Social Science-Economics 7-12
Total Social Sciences

Sp. Ed. Special Education
Sp. Ed. Modified K-12
Sp. Ed.-Educable Ment. Ret.
Sp. Ed. Speech/Hearing K-12
Sp. Ed. Comp. K-12
Sp. Ed. Deaf K-12
Sp. Ed. Sp/Lan PreK-12
Sp. Ed. Mult Disabil. K-12
Sp. Ed. Hear PreK-12
Sp. Ed. Erly Ch. Prek-1
Sp. Ed. Visually Impaired
Sp. Ed. Vision PreK-12
Sp. Ed. Blind K-12
Sp. Ed. Crippling & Sp. Health
Sp. Ed.Partially Seeing
Total Special Education

Appendix 3: Detail of the Reserve Pool—Kind of Endorsements by Area

Name
Elementary Grades 1-9
Elementary Grades 1-8
Elem-Kindergarten-Grade 3
Elem-K- 8 Early Grade Spec.
Elem.-Pre K-3 Early Child
Total Elementary

Total English

ESL

For. Lang.-Spanish
For. Lang.-French
For. Lang.-German
For. Lang.-Latin
For. Lang.-Russian
For. Lang.-Other Foreign Language
Total Foreign Language

Health-Health K-12
Health-Health Instruction
Total Health

Total Mathematics

Total Middle School

Misc.-Bible
Misc.-Driver Education
Total Miscellaneous

Physical Ed. K-12
Phy. Education 7-12
Phy. Education K-8
Total Physical Ed

Name
Staff-Sch Counselor K-8
Staff-Librarian K-12
Spec. Tchr Rdng K-8
Staff-School Psychologist
Spec. Tchr Rdng K-12
Staff-Social Worker
Staff-Tchr Librarian K-12
Staff-Guidance Associate
Total Staff

Voc.-Tech. Misc.
Voc.-Tech-Typewriting
Voc.-Tech.Shorthand
Voc Home Economics
Voc.-Tech.Office/Clerical Prac
Voc.-Tech.Secretarial Practice
Voc-Tech. Home Economics
Voc.-Tech.Salesmanship
Voc.-Tech.-Voc Agricultural
Voc.-Tech.-Woods
Voc.-Tech.Industrial Arts
Voc.-Tech-Graphics Arts
Voc.-Tech.-Metals
Voc.-Tech-Drafting
Voc. Tech. -Power Mechanics
Voc.-Tech-Data Processing
Voc. Tech.-Elec/Electronics
Voc. Tech. -Plastics
Voc. Office Ed.
Voc.-Tech.Office Technology
Voc.-Tech.-General Agriculture
Voc.-Tech.Prof.Vocational
Voc.-Tech-Comm. & Med. Tech.
Voc.-Tech.Ornamental Hort.
Voc.-Tech.Industrial Arts
Voc.-Tech-Ceramics
Total Vocational